COVER PAGE

Improving Teacher Quality
Higher Education Grants Program
Project Year 2015-16

S.C. Commission on Higher Education

1. Project Title: BRIMS: Beginning Robotics by Integrating Mathematics and Science

2. Institution: Charleston Southern University

3. High-Need LEA(s): Dorchester District Four (DD4)

4. Other Collaborating Organizations

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7. Proposed Funding

a. ITQ (CHE): $150,000

b. Institution: $52,000

c. Cooperating LEA: $36,000

d. Other: N/A

e. TOTAL: $238,000

8. Estimated Number of Project Participants: 35

9. Partnership Representatives/Signatures

College/School of Education
Name: Dr. George Metz

Signature: Patricia Hambrick for Dr. Metz

College of Mathematics and Sciences
Name: Dr. Jeryl Johnson

Signature: for J. J.

Local Education Agency:
Name: Dorchester District Four (DD4)

Signature: Morris Ravenell

BEGINNING ROBOTICS BY INTEGRATING MATH AND SCIENCE (BRIMS) AT THE THIRD THROUGH SIXTH GRADE LEVELS

Beginning Robotics by Integrating Math, Science and Reading (BRIMS) is a collaborative partnership between Charleston Southern University and Dorchester 4 School District (DD4). This rural district serves a region that has seen a tremendous influx of science and technology-related businesses and they are hiring employees for positions in science, technology, engineering, and mathematics (STEM). While these companies want to hire employees locally, they find that many high school graduates do not possess the skills and abilities needed for success in scientific or technical careers.

The purpose of the BRIMS project is to provide sustained professional development in science and mathematics content knowledge and pedagogy for 25 third through sixth grade teachers in Dorchester District 4. The project is aimed specifically at increasing achievement in science and mathematics through the integration of standards and practices in both areas and uses robotics as a vehicle of inquiry-based instruction. Through hands-on onsite monthly workshops, a summer institute, in-person and Course Management System delivery, and classroom visitation, teachers will receive intensive professional development. This grant provides the foundation for developing STEM at the elementary school level where knowledge, skills and motivation for success begin.

The evaluation plan will include assessing teacher content knowledge in science and mathematics standards as measured by pre-and post-assessment of content knowledge; increased student achievement in science and mathematics as measured by the PASS test; and teacher methodology as measured by assessment of each participant's course portfolio.

Beginning Robotics in the Integration of Mathematics and Science

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Proposal Narrative

a. Need for the Program

Despite our historical record of achievement, the United States now lags behind other nations in STEM (Sciences, Technology, Engineering, Mathematics) education at the elementary and secondary levels. On the National Assessment of Education Progress (NAEP), less than 1/3 of U.S. eighth graders show proficiency in mathematics and science[1]. These statistics ring true in several school districts in South Carolina, and one that demonstrates a high need for improvement is Dorchester District 4 (DD4), located in rural Dorchester County. With a district-wide poverty index of 87.83% and PASS scores that, in many cases, are unacceptable (see Table 2)[2], the three elementary and two middle schools show a need for a more innovative and integrated curriculum in STEM subjects.

In the fall of 2014, Dr. Patricia Hambrick from Charleston Southern University (CSU) met with Dr. Morris Ravenell, Dorchester District 4 (DD4) Superintendent of Schools, and Dr. Gwendolyn Bright, Director of Accountability and Staff Development for DD4, to discuss the ITQ grant's major thrusts and DD4's specific needs. At that time, a partnership was formed between DD4 and CSU, thus bringing together the needs of the district and the resources of CSU's School of Education and College of Science and Mathematics. The partners worked collaboratively to determine the district's needs by reviewing the poverty indices, PASS scores, district-wide professional development efforts and instructional programs that are being implemented in DD4. It was agreed that science and mathematics achievement presented a strong need for improvement; thus, this grant was developed. Dorchester 4 has not been a recipient of an Initial Teacher Quality Grant in the past.

With district-wide PASS scores falling close to or below the state scores, it was determined that all three elementary schools and two middle schools would benefit from having teachers participate in the grant. Surprisingly, South Carolina's **statewide** PASS data at each grade level in mathematics and science indicate that, for the most part, an unacceptable percentage of students did not meet the standards (see Table 1)[3]. It is even more disheartening to discover that overall, with the exception of Clay Hill Elementary and two grade levels at Williams Memorial Elementary, DD4's school-wide percentages of students not meeting mathematics standards hovered around the state's percentage or were even higher, except for fourth grade, where the percent not meeting standards was lower than the state. Unfortunately, Harleyville Elementary and Harleyville-Ridgeville Middle School indicate that essentially in all grade levels and all subject areas tested, the percentage of students who do not meet standards is higher than the state percentage. This is alarming, because in the Secretary's Commission on Achieving Necessary Skills (SCANS) Report (2012), it was revealed that information-oriented and service-oriented sectors require that employees demonstrate knowledge, skills and attitudes in STEM- related fields that allow them to excel in the modern workforce[4].

Three of the schools (Clay Hill Elementary, Harleyville Elementary and Harleyville-Ridgeville Middle) have poverty indices that top out at **above 90 percent.** Two additional elementary and middle schools (Williams Memorial Elementary and St. George Middle) present indices above 84% (see Table 2).On annual growth contained on the school report cards (2013), Harleyville Elementary showed below average and St. George Middle indicated an at-risk rating. St. George Middle is also a school where only 34.5% of the teachers hold advanced degrees. At Harleyville-Ridgeville Middle, only 25% have advanced degrees[5].

While the grant's focus is on mathematics and science, reading skills naturally relate to instruction in those two areas. District-wide, the percentage of students not meeting standards in English/Language Arts was higher than the state's at all grade levels. This becomes critical because as students progress to high school, mathematics and science content requires more complex reading skills. As classroom activities are developed, teachers will be reminded to include activities that reinforce reading skills, particularly in the area of informational text.

Table 1. SC Statewide PASS Scores (2013): % of students in each grade level scoring "not met" in Mathematics and Science

Content Area	3	4	5	6
Mathematics	30.2	20.2	23.7	28.7
Science	32.2	26.9	27.0	31.6

Table 2. Poverty Indices and Dorchester 4 PASS Score Data (2013): % of students scoring "not met" in Mathematics and Science

School	Poverty Index	Grade Level	Mathematics	Science
Harleyville Elementary	90.69%	3	54.8	61.9
		4	29.7	32.4
		5	40.8	27.3
Clay Hill Elementary	96.05	3	42.9	9.1
		4	11.0	16.7
		5	5.3	0 (10 students)
Williams Memorial El	84.26	3	25.5	33.3
		4	15.1	12.9
		5	12.2	32.0
St. George Middle	85.92	6	25.5	33.3
Harleyville-	95.14	6	34.6	29.7

Ridgeville Middle				

These data send a message that something needs to change in terms of student achievement in the STEM-related subjects of science and mathematics. STEM subjects tend to be highly cumulative and sequential; thus, students need to learn basic skills at an early age[6]. Students who lack proficiency face a mounting barrier, as it becomes increasingly difficult to engage in STEM subjects without a solid foundation in each of the areas[7]. This grant proposal focuses on third through sixth grades because science and mathematics content and practices are foundational and essential at these levels for future success.

The most important factor in ensuring excellence is great STEM teachers, with both deep content knowledge in STEM subjects and mastery of the pedagogical skills required to teach these subjects well.[8] The superintendent and principals in DD4 recognize the need for and believe that their teachers will benefit from sustained professional development that emphasizes teachers' content knowledge in mathematics and science. Further, they believe that teachers must also find efficient and effective pedagogical practices that result in increased student achievement. The district requested that the professional development occur at several grade levels so as to impact more fully the progression of instruction.DD4 is in its first year of implementing the 2014 science and mathematics standards and will benefit from this professional development emphasis. As students progress each year, their teachers will have been trained in the integration of science and mathematics, thus promoting continuity from year to year. Including third through sixth grade teachers who are from the same school supports the research that teachers who are from the same school are likely to engage in professional dialogue on a daily basis and discuss students' needs across classes and grade levels.[9]

b. Purposes and Objectives of BRIMS

*The **purpose** of BRIMS (Beginning Robotics in Mathematics and Science) is to increase mathematics and science content knowledge and pedagogical skills of third through sixth grade teachers and enhance their ability to integrate mathematics and science instruction that results in improved student achievement in both areas.* This purpose will be achieved through a sustained professional development program that focuses on: (1) science content knowledge and practices essential for effective teaching of the SC Science Standards and Performance Indicators; (2) mathematics content knowledge and practices essential for effective teaching of the SC Mathematics Standards; and (3) science and mathematics pedagogy that focuses on the integration of science and mathematics instruction using robotics and other inquiry-based, problem solving strategies.

Objective 1: Implement and assess a professional development program for third through sixth grade teachers that expands their content and pedagogical knowledge in mathematics and science and increases their ability to integrate these two subjects in their instruction. Content and pedagogical knowledge is absolutely essential if teachers are going to integrate the two sets of standards (mathematics and science). Using a blended approach of face-to-face workshops and summer institutes along with online assignments and activities, the achievement of this objective should occur.

Objective 2: Increase student achievement in science and mathematics through implementation of robotics and other inquiry-based and problem solving strategies in the integration of the two content areas. The emphasis on integration of science and mathematics content knowledge and pedagogy is designed to increase the effectiveness and efficiency of science and mathematics instruction. Professional development that guides teachers in integrating content in the teaching of STEM subjects and infuses robotics and other inquiry-

based strategies in teaching should result in increased student achievement and interest in STEM-related fields.

Objective 3: *Implement a sustainability model for continuing the professional development program upon the end of grant funding.* One teacher from each school will be selected at the end of the grant and will be provided additional instruction during the summer to serve as a model BRIMS instructor. The five model teachers identified as exceptionally capable in the project will assist in training other teachers to continue to integrate these effective strategies in the future at their schools. Their selection and effectiveness as model BRIMS teachers will be based on a rubric that: (a) assesses their ability to use science and mathematics standards, practices and performance indicators to integrate science and mathematics standards; (b) indicates results of teacher content knowledge tests;(c) measures their ability to use robotics and other inquiry-based strategies; and (4) determines their skills in working collaboratively.

Research

Major findings from the President's Council of Advisors on Science and Technology (PCAST 2010) emphasize that students learning science and mathematics need to acquire capabilities in both subjects together because they support each other.[10] This tenet of science and mathematics integration is supported by the National Science Teachers Association (NSTA)[11], National Council of Teachers of Mathematics (NCTM)[12], and the American Association for the Advancement of Science (AAAS)[13].

Our own South Carolina Department of Education echoes this same belief. Dr. Brianna Timmerman, Director of Office of Instructional Practices and Evaluation, related that the 2014 Science and Mathematics Standards and Practices should be used in this proposal. Many of the standards, practices and performance indicators of the two subjects correlate well to each other.

SC's standards mark a significant shift in how science is both taught and learned. Employing mathematical methods thoroughly in science instruction has great benefits for both fields. For mathematics, it ensures that students see the mathematics they study actually being used, and it reinforces their learning. For science, it helps advance instruction that provides true and meaningful processes of inquiry and problem identification and solving[14].

Numerous research studies demonstrate the value of inquiry-based learning, particularly in improving achievement levels of the lowest performing students and minorities.[15] As the quantity and quality of inquiry-based instruction improves, so too does student achievement[16], and by using student-derived investigations and active inquiry, knowledge becomes more relevant and meaningful.[17] Robotics is all about using inquiry-based approaches and problem solving strategies, and it is a growing field that has the potential to significantly impact the nature of science, engineering, and mathematics education at all levels from K-12 to graduate school.[18] In robotics classes, students learn how to apply scientific principles to real-life situations and their knowledge in science and mathematics improves through hands-on activities, inquiry-based learning and problem-solving skills.[19]

Research also suggests that robots tie into a variety of disciplines. This interdisciplinary nature of robotics means that when students learn to engineer robots, they will inevitably learn about the many other disciplines that robotics utilize.[20] Robotics is also a highly effective way to foster essential work skills like collaboration, problem solving and project management.[21] Researchers at the National Robotics Engineering Consortium (NREC)—part of Carnegie Mellon's world-renowned Robotics Institute—found that teachers and students alike report great success when robotics lessons are incorporated into the curriculum.[22] In a pilot study that examined the use of a science and technology curriculum based on robotics with 9-11 year-olds,

results revealed that youth in the robotics intervention had significant increases in mean scores on the post-test and that the control group had no significant change in scores from the pre- to post-test.[23]

After an exhaustive review of hundreds of articles and reports, the researches for *Best Evidence Encyclopedia* at Johns Hopkins University and the National Science Foundation report that the strongest predictor of teacher effectiveness is effective professional development.[24] Similarly, during the past decade, researchers have come to general agreement that sustained participation in high quality professional development increases subject-matter knowledge and pedagogical skills that result in changes in teachers' attitudes, behaviors and instructional practices which contribute to an increase in student learning.[25]

A particularly interesting and useful model of professional development---*Correlated Science and Mathematics: A New Model of Professional Development for Teachers (CSM)*-- is unique in that it integrates science and mathematics in a more comprehensive manner than other integration models.[26] The model emphasizes the use of strategies such as active learning, team work and teacher networks, all of which have a positive impact on teaching practice.[27] Florida State University presently is involved in an ongoing project that focuses on professional development for increasing teachers' content knowledge in science and mathematics and teaching them to develop lessons that integrate the two areas. They have found that summer professional workshops, professional development days during the school year, teams who work together to develop/teach integrated lessons, and online communities make a big difference in teacher commitment to the project's goals.[28] All of these elements are included in BRIMS.

c. Activities

Professional development is at the core of the BRIMS Program and is designed to engage 25 third through sixth grade teachers from five selected schools in a program that includes summer institutes, monthly school-based workshops, online activities, classroom visitations and coaching. Standards for Professional Development of Mathematics (NCTM)[29] and those in Professional Development in Science Education (NSTA)[30] guided the nature of professional development in this grant. South Carolina's Professional Development Standards[31] provided the framework on which the objectives and activities in this project are based.

For the purpose of explanation, SC standards are grouped together under a broad descriptor since they are not met in isolation of each other, and some standards are addressed in more than one area. Descriptors of professional development standards, identification of the manner in which this project will meet them and the numbers of the standards are presented in Table 3.

Table 3. Characteristics, Grant Components and SC PDS Correlation

Characteristics of Effective Professional Development Program	Grant components that address the characteristics	SC PDS Standards
1. Fosters the norm of continuous improvement based on identified needs	Identification and analysis of student achievement data; pre/post tests of teacher content knowledge; summer institutes; workshops and online activities; teacher portfolio	1, 2, 3 and 8
2. Assures adult learning styles are incorporated and establishes collaborative working teams that participate in decision-making	Professional Development Model of the grant; DD4 and CSU collaboration; workshops and summer institutes, online discussion boards	3, 4, 5, 6 and 13
3. Provides time for implementation and a framework for integrating the innovations in the school	Ongoing workshops and summer institutes over an 18-month period; CSU faculty available for assistance in implementing grant components in individual schools	4, 7, 9 and 19
4. Evaluates program results using student achievement data and teacher implementation progress	Use of PASS scores, grade-specific quarterly science and mathematics benchmarks; pre/post tests of teacher content knowledge in mathematics and science; classroom observations, and teacher portfolio	8, 10

5. Uses multiple approaches so that teachers will maintain high expectations and improve student success.	Inquiry-based strategies including robotics demonstrations and modeling practices occurring at workshops, institutes, and online. Individual demonstrations conducted in third-sixth grade classrooms	11, 17
6. Promotes effective follow-up to ensure improvement	Classroom visitations; review of performance at workshops and institutes, portfolio review, teacher reports of progress	10, 12
7. Provides opportunities for participants to adapt strategies in order to serve diverse needs of students	Workshops and institutes providing information/activities that assist teachers in integrating math and science for all students and for making adjustments to fit all students' needs.	14, 15 and 16
8. Nurtures partnerships that benefit students	CSU School of Education and College of Mathematics and Sciences; various business partners providing resources and services to DD4 teachers	18

The President's Council of Advisors on Science and Technology (PCAST) recommends that science departments in universities team up with public school teachers to assure that both groups are learning content and effective pedagogy from each other.[32] That's exactly what BRIMS intends to do. Content and activities will be designed and delivered in standards-based instructional modules for each of the four grade level topics[e.g., 4th grade broad area is earth science, topic is weather and climate (see Table 4). Each module will be developed and taught by a team of mathematics, science and teacher education professors and will contain: (a) an outline of content knowledge; (b) a description of activities for teaching pedagogical knowledge, including use of robotics; (c) designation of mathematics standards and practices that correlate to science standards and practices; (d) a description of online activities; (e) suggested resources, websites and materials, including those from the SDE specifically related to the standards, and (f) pre and post measures of content knowledge of teachers. Science and engineering conceptual understandings, practices, standards and performance indicators will be integrated with

mathematics practices and standards. Because of the nature of the new standards, there are a number of opportunities for this integration to take place.

Each of the four topics (modules) in each grade level will consist of: (a) 12 hours of content knowledge, including use of robotics and other inquiry-based approaches; (b) 10 hours of integration of science and mathematics standards and practices into the content; and (c) 12 hours of content pedagogical skills for integrating science and mathematics.

Table 4. Grade Level Topics/Modules and Schedule

Time Frame/Module	Grade 3	Grade 4	Grade 5	Grade 6
September October **Module 1** November	(E) Earth's Materials and Processes 3.E.4 Practices	(E) Weather and Climate 4.E.2	(E) Changes in land forms and Oceans 5.P.3	(E) Earth's weather and Climate 6.E.2
December January**Module 2** February	(P) Energy Transfer-Electricity and Magnetism	(P) Forms of Energy-Light and Sound 4.E.4	(P) Forces and Motion 5.P.5	(P) Transfer of Energy and Conservation 6.P.3
March April **Module 3** May	(L) Environments and Habitats 3. L. 1	(L) Characteristics and Growth of Organisms 4.L.5	(L) Interdependent Relationships in Ecosystems 5.L.4	(L) Diversity of life and Classification and Animals 6.L.4
June (Summer Institute 2) **Module 4**	(P) Properties and Changes in Matter 3.P.2	(E) Stars and Solar System 4.E.2	(P) Understanding of Physical Properties of Matter and Mixtures 5.P.2	(L) Diversity of Life: Protists, Fungi and Plants

Spring Workshops. Prior to the initiation of the modules in Summer I, teachers and professors, along with university and district leaders, will be invited to an initial meeting at CSU for the purpose of getting to know each other and receiving an overview of the project. Starting in January and continuing through Spring 2015, professors will be developing standards-based, integrated science/engineering and mathematics modules. During this same time, education professors will be visiting classrooms and developing relationships with the teachers. Teachers also will be attending three school-based workshops (see Table 4) and participating in activities that highlight the *eight practices* (see description in the Appendix A) in both science and mathematics. Since the practices definitely are not taught in isolation, content demonstration lessons will be taught, and teachers will determine which practices are being used. During the

Summer Institute I and throughout the program, science and mathematics practices will be integrated into content as it is presented, thus modeling for teachers what is expected in their classrooms.

Reviewing these practices prior to the Summer Institute I will assist the teachers as they prepare to study the three major content areas—life, earth and physical sciences--- in the institute. During these three months, teachers also will be expected to review their science and mathematics standards and performance indicators so that when they attend Summer Institute I, they are prepared to delve into them.

Table 5.Spring Workshops

Workshop 1 March 2015 3:00-5:30	Welcome(10 min) (Hambrick); Pre-test of science and mathematics content (40 min). (Walker and Hambrick);Inquiry-based lesson using **science/engineering and mathematics standards and practices** that relate to life science (40 min)(Nolan); Review of eight practices of science and engineering as seen in the lesson (50min)(Nolan and Franklin); Closing (10 min) Hambrick.
Workshop 2 April 2015 3:00-5:30	Welcome (10 min) (Hambrick); Guest Speaker representing a STEM field related to earth science (40 min); Robotics demonstration lesson from earth science content (40 min) (Walker and Blauch); Grade level analysis of lesson in terms of integration of math and science standards and the use of eight practices (50 min) Grieves, Blauch, Nolan, Walker, Franklin, Karges-Bone); Closing (10 min)(Hambrick).
Workshop 3 May 2015 3:00-5:30	Welcome (10 min) (Hambrick); Robotics-based demonstration lesson integrating mathematics and science standards and practices (40 min) (Grieves and Walker); Grade level analysis of lesson in terms of integration of math and science standards and the use of eight practices (40 min) (Grieves, Blauch, Nolan, Walker, Franklin, and Karges-Bone); Grade level brainstorming of inquiry-based and robotics activities that teachers recommend for integrating mathematics and science standards and practices in their classrooms (40 min) (Walker; Hambrick,Karges-.Bone, Franklin and Marques); Closing (10 min) Hambrick.

Summer Institute 1: Teachers will begin the four modules for each grade level in Summer I (2015) and complete them by the end of Summer II (2016). During Summer Institute I (June 2015), teachers will be involved in several activities that will: (a) develop their science content knowledge in each of the three major science areas—life, earth and physical; (b) increase their

ability to integrate mathematics and science standards and practices; and (c) enhance skills and knowledge in teaching robotics and other inquiry-based activities. Also the teachers will observe demonstration lessons and analyze them by grade level. They will be observing and analyzing the lessons in terms of practices used and integration of mathematics and science standards. Further, they will review and use a variety of classroom materials, software and websites. Teachers also will gain valuable information from guest speakers in STEM-related fields.

It is strongly believed and supported by research that teachers need a broad spectrum of content in science and mathematics, not just the content that is targeted to the exact standards they use.[33] For this reason, the 4-hour general content presentations in each of the three areas will be beneficial for all grade levels 3-6. Review of content and analysis of demonstration lessons will occur in grade level teams. Content that is directed specifically toward grade level standards will be taught in the monthly grade level workshops and the Summer II Institute.

Table 6.Summer Institute I

Day 1: 8:45-3:30	Welcome and overview of week's plans (45 min) (Hambrick); Review of 8 practices for science and mathematics (2 hr) (Walker and Grieves); Standards-based demonstration lesson, using robotics, and integrating mathematics and science practices(40 min) (Nolan); Grade level analysis of lesson to determine which practices were integrated and how they were taught. (60 min) (Nolan, Franklin, Fonkert, and Grieves) :Guest Speaker representing a career in a life science STEM-related field (45 min) (Hambrick)
Day 2: 8:45-3:30	Presentation on life science content (4 hours) (Nolan); Grade level identification of standards that address content that was presented (30 min) (Hambrick, Nolan, Walker, Grieves, Blauch, Franklin and Karges-Bone); Standards-based demonstration lesson in life science using robotics (30 min) (Nolan and Blauch); Grade level analysis of lesson to determine which practices were integrated and how they were taught. (30 min) (professors same as above).
Day 3: 8:45-3:30	Presentation on earth science content (4 hours)(Walker); Grade level identification of standards and practices that address content that was presented (30 min) (same professors as Day 2); Standards-based demonstration lesson in earth science using inquiry-based and problem solving strategies (30 min) (Walker); Grade level analysis of standards and practices that were taught in the lesson (30 min) (same professors as Day 2).
Day 4: 8:45-3:30	Guest Speaker representing a career in a physical science STEM-related field (Hambrick); Presentation on physical science content (4 hr.) (Guest Professor); Grade level analysis of standards and practices that address content that was presented (30 min) (Same as professors in Day 2); Grade level brainstorming of effective strategies for teaching physical science content; (30 min) (Franklin, Hambrick, Karges-Bone and Marques) Closing and Celebration of Learning (Hambrick).

Monthly Workshops. School-based **grade-level** workshops will be held monthly and focus on content knowledge, pedagogy and grade level integration of math and science standards and practices. The workshops and activities will be organized into **grade level** modules. Each of the **four modules per grade level** are arranged according to one of the three broad core areas (life, physical or earth science) and will occur over a three-month period (See Table 4). All standards and performance indicators related to a given topic/module (e.g. 4th grade area is earth science; topic in module 1 is weather and climate) will be addressed at the workshops. Follow-up online activities emphasizing content and pedagogy will be assigned related to each workshop, and it is expected that those activities will comprise approximately 3 hours per workshop. Three of the grade level modules will be completed during the school year. Module 4 will be completed during Summer II 2016.

Three components (35 minutes each) will result in an instructional rotation in each grade level workshop; another 30 minutes will be devoted to a large group activity (e.g. speaker) and 15 minutes are accounted for in opening and closing (See Table 7). The components of each grade level workshop are: (a) presentation of content for standards being addressed; (b) demonstration lesson integrating mathematics and science standards and practices; and (c) analysis of the demonstration lesson in terms of integration of the standards and practices and use of inquiry-based learning (robotics). All nine monthly workshops will follow a similar format with content, standards, and practices changing each month as related to the specific grade level standards.

Three science, three mathematics and three education professors will be conducting the workshops, and the Project Director will coordinate workshop activities. Two content professors will each be teaching the same content at the same time (See Table 7), and two will be

conducting grade level demonstration lessons. Education faculty will conduct the analyses of the lessons. Professors will meet together ahead of time to plan the lessons/content.

Table 7.Sample Monthly Workshop Schedule and Components

Schedule	3	4	5	6
Opening	Welcome: All grade levels together			
Segment 1 (35 minutes)	Content (Nolan)	Demo. Lesson (Karges-Bone)	Content (Heldreth)	Demo (Franklin)
Segment 2 (35 minutes)	Demo (Karges-Bone)	Content (Nolan)	Demo (Franklin)	Content (Heldreth)
Segment 3 (35 minutes)	Analysis of Lesson (Karges-Bone)	Analysis of Lesson (Franklin)	Analysis of Lesson (Marques)	Analysis of Lesson (Hambrick)
Whole Group Activity (30 minutes) Guest Speaker; Review of materials; Video; etc.	All grade levels together			
Closing (Hambrick)	All grade levels together			

The value of this approach is that teachers will practice in their classrooms what they learn in the workshops, thus applying the information to their everyday life in the classroom.

Summer Institute II will include the fourth module at each grade level as well as field trips that add valuable information and experience. A Celebration of Learning will occur at the end of Summer II. Both whole group and grade level instruction will occur in Summer II.

Table 8. Summer Institute II

Day 1: **8:45-3:30**	*Whole Group*: Welcome and overview of week's plans (10 min)(Dr. Hambrick); Report out of activities, materials, websites, software and other resources that teachers used during the past year (45 minutes) (Hambrick, Fonkert and Walker); Guest Speaker related to life science (45 minutes) (Hambrick) *Grade Levels*: Presentation of Module 4: Part 1 by Grade Levelswill follow the same format as in the sample monthly workshop except that the sessions are 50 minutes rather than 35 (See Table 7). Professors include:third (Properties and changes in matter- Walker and Franklin); 4th (Stars and the Solar System-Heldreth and Karges-Bone); 5th (Physical properties of matter and mixtures- Walker and Franklin); and sixth (Diversity of life: Protists, Fungi and Plants- (Heldreth and Karges-Bone). *Whole Group*: Demonstration Lesson in physical science using robotics (40 min)(Walker and Bauch); Grade level analysis of lesson in terms of integration of math and science and inquiry-based learning(45 min) (Franklin; Hambrick; Karges-Bone and Marques).

Day 2: 8:45-3:30	*Grade Levels*: Presentation of module 4: Parts 2 and 3 by grade levels will follow the same format as Day 1(Professors include the same as Day 1). *Grade Level*: Visitation to Schools—one teacher in each grade (3, 4, 5,and 6) will model in their school a lesson for their particular grade using inquiry-based strategies that integrate standards. Four teachers who have shown exemplary performance will be asked to present the lessons. A follow-up discussion of how the lesson integrates science and mathematics standards and inquiry-based learning will be held. (2.5 hours allowing for travel) (Hambrick, Franklin, Nolan and Grieves).
Day 3: 8:45-3:30	Field trip to Boeing or other appropriate physical science site (3.5 hours allowing for travel time)(Bone, Hambrick, Heldreth and Grieves); Process trip and how teachers can adapt what they learned to the classroom (same professors as above); Panel Discussion (Panelists will be professors, representing each department, and selected teachers (1/grade level) to answer questions related to any content or activities that have been or may be done in the future in teachers' classrooms (1 hour).
Day 4: 8:45-3:30	Field Trip to Caw Caw or Birds of Prey (4 hours) (Hambrick, Grieves, Nolan and Marques); Processing field trip (30 minutes)(same professors); Celebration of Learning (all professors and teachers, invited guests from DD4 and CSU. (1 hour).

CSU plans to include a Course Management System (CMS) that will allow for continuous communication among all participants and instructors through discussion boards, blogs, wikis and an instant e-mail system and message center. Podcasts, videos, potential software, content presentations, and other instructional activities also will be included. Inclusion of online activities with face-to-face workshops and practice in the classroom fosters a blended opportunity for teachers to engage, interact and participate in both virtual and real contests.[34]

d. Participants.

A cohort of 25 third through sixth grade teachers, representing approximately 500 students in Dorchester District 4, will be participating in the BRIMS project. The participants include all the third through fifth grade teachers at Clay Hill and Harleyville Elementary Schools and selected teachers from Williams Memorial Elementary, St. George Middle and Harleyville-Ridgeville Middle Schools. A letter inviting participation in grant development and implementation was sent to Givhans Christian School, the only private school in Dorchester District 4. The opportunity was declined.

. Evaluation Plan.

The BRIMS Evaluation Plan will be focused on four areas: (1) Changes in teacher content knowledge in science and mathematics, (2) changes in teacher pedagogical knowledge, (3) changes in teacher practice, and (4) changes in student learning outcomes in science and mathematics. Each of the project objectives will be evaluated using a combination of qualitative and quantitative measures as shown in Table 9 below. The project objectives are:

- Objective 1: Implement and assess a professional development program for third-sixth grade teachers that expands their content and pedagogical knowledge in mathematics and science and increases their ability to integrate these two subjects in their instruction.
- Objective 2: Increase student achievement in science and mathematics through implementation of robotics and other inquiry-based and problem solving strategies in the integration of the two content areas.
- Objective 3: Implement a sustainability model for continuing the professional development program upon the end of grant funding.

An interim evaluation report will be produced in January 2016 showing the progress made on each objective and each measure described in Table 9. A final evaluation will be conducted in June 2016 that will include the final results of each measure, graphs depicting those results, and a discussion of whether the grant objectives were met. It is expected that the measures described will serve to evaluate each objective fairly and will provide adequate proof of the success of the project upon completion.

Table 9. Evaluation measures for each objective and each focus area. Items highlighted in yellow are quantitative; those highlighted in green are qualitative.

Objective	(1) Changes in teacher content knowledge	(2) Changes in teacher pedagogical knowledge	(3) Changes in teacher practice	(4) Changes in student learning outcomes
1	Teachers will take a content knowledge pre-	Teachers will compile a portfolio	Teachers will include a set of lesson plans in	

	test in math and science in summer 2015 and a post-test in June 2016. Results will show that teachers gained content area knowledge in both subjects over the course of the grant.	of their experiences during the course of the grant, including a final reflection of how their pedagogical knowledge changed as a result of the grant. The portfolio will be evaluated based on a rubric to be designed by the CSU Education faculty and will show that overall, teachers' pedagogical knowledge changed as a result of grant experiences.	their final portfolio, including at least one lesson plan each in earth, physical, and life sciences. The lesson plans will be evaluated based on a rubric developed by the CSU Education faculty and will show that teachers are able to incorporate their newly acquired content area and pedagogical skills in developing grade-appropriate math and science activities for their students.	
2				Student PASS test scores in math and science will be compared for the years 2014 (before the grant) and 2016 (after the grant). Results will show that student achievement improved in math and science following the teachers' professional development experience.
3	BRIMS model instructors will be chosen based on their ability to use science and mathematics standards, practices and performance indicators to integrate science and mathematics standards. Results of the pre- and post-tests will be used to determine eligibility.	BRIMS model instructors will be chosen based on their ability to use robotics and other inquiry-based strategies. The Project Director will use the teacher portfolios to determine eligibility.	BRIMS model instructors will be chosen based on their skills in working collaboratively. The Project Director and CSU Math, Science and Education faculty will compare their observations to determine eligibility.	

F. Key and Support Personnel

The chart below portrays overall qualifications, project-related responsibilities and time allotment. Each of the nine professors will receive the equivalent of one **graduate course overload ($ 2000)** and will assume leadership in the grant as they develop and teach modules. Each individual's complete resume is located at the end of the narrative.

Table 10: Key Personnel

Name	Qualifications	Grant Responsibilities
Dr. Patricia Hambrick	Ed.D (Doctor of Technology and Learning); Director of Academic Technology and academic grants; numerous experiences in public schools; taught technology, mathematics and effective teaching and learning styles classes; wrote and submitted numerous grant proposals that have been funded (see vitae)	30% reduced load Director of Grant and Coordinator of Mathematics
Dr. Melinda Walker Professor Physical Science and Biology	Ph.D (Mollecular and Cell Biology); Chair of Biology Department; served as Science Coordinator for previous ITQ grant; developed overseas distance learning programs; developed laboratory programs for a range of science courses; middle school science teacher	Science Implementation Coordinator; Develop and teach modules 25% reduced load
Dr. Amy Nolan Professor Biology	Ph.D (Cell and Molecular Pharmocology); worked with School of Education grants and presented workshops to elementary and middle school educators including previous ITQ grant); received CSU Excellence in Teaching award	Develop modules and; teach in workshops and institutes; and perform other relevant activities e.g. field trips
Dr. Todd Heldreth Associate Professor Biology	Doctor of Veterinary Medicine; Presenter of zoology and biology content for 2012-2014 ITQ grants; Advisor in Dorchester 2 schools for mock trial cases that deal with physiology; presented to middle and high school students on topics related to animal biology	Develop modules and; teach in workshops and institutes; and perform other relevant activities e.g. field trips
Dr. Andrew Blauch Associate Professor Mathematics	Ph.D (Electrical Engineering); Advisory Council – Summerville	Develop and teach mathematics modules; and perform other

	HS; Goose Greek HS; Engineering talks to high school and middle school students; presentations in public schools on engineering, science, and robotics	relevant activities, e.g. field trips
Dr. Karen Fonkert Assistant Professor Mathematics Education	Ph.D (Mathematics); Teaches mathematics content and methods to elementary and secondary education students; numerous presentations related to this grant; 9 years experience as a public school teacher	Develop and teach mathematics modules; and perform other relevant activities, e.g. field trips
Dr. Justin Grieves Assistant Professor Mathematics	Ph.D (Mathematics); STEM Festival Planning Committee; worked with math club at Murray Elementary School; Hester Faculty of the Year 2013	Develop and teach mathematics modules; and perform other relevant activities, e.g. field trips
Dr. Robin Franklin Associate Professor of Education	Ph.D (Educational Leadership); taught in the ITQ grant from 2012-2014); teaches sciences methods courses; Teacher of Adult Teacher Learners; Assistant Principal	Develop modules; teach in workshops and institutes; and perform other relevant activities e.g. field trips
Dr. Linda Karges-Bone Professor of Education	Ed.D (Curriculum and Instruction); taught methods for elementary school science; serves on numerous advisory boards; written several grants and participated in teaching and writing grants that directly relate to the content in this grant; taught in ITQ grant for 2 years	Develop modules; teach in workshops and institutes; and perform other relevant activities e.g. field trips
Ms Brenda Marques Assistant Professor of Education	M.Ed (Reading); Director of Field Experience in School of Education (SOE); Assistant Principal, Lead Teacher and Title I Consultant; teaches reading courses in SOE.	Teach in workshops and institutes; and perform other relevant activities e.g. field trips
Dr. Mary Gene Ryan Grant Evaluator	Ed.D (Curriculum and Instruction); served as project director and/or project coordinator for several grants; served as evaluator for federal and state programs	Project Evaluator
Mr. Brian McGlothlin	Communications Assistant; distance learning consultant; information resource for faculty and staff	Technician – perform technology-related tasks; assist in setting up for workshops and presentations (25%)

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COLLABORATIVE PLANNING EFFORTS

Describe the collaborative planning efforts that have occurred between the participating institution, school of education, division of arts and sciences, LEA(s), and any other participating organizations or agencies.

All grant partners participated in project planning and preparation. The Director of Academic Technology, Dr. Patty Hambrick at Charleston Southern University, met with Dr. Morris Ravenell, Dr. Gwendolyn Boyd Bright, Director of Staff Development/Accountability, principals of Harleyville Elementary (Ms. Christie Langdale) and Clay Hill Elementary School (Ms. Tracy Jackson) to discuss potential responsibilities of the grant and to gain an understanding of science and mathematics needs of Dorchester District Four's 3rd- 6th grade students. Dr. Hambrick also met with the district's grant director (Ms. Rhonda Robinson). Dr. Hambrick met with Dr. Bright and Dr. Ravenell to discuss the grant possibilities and strengths of the potential proposal. They also discussed the benefits of the grant to the district and the individual schools.

After meeting in the summer 2014 a meeting was held with the College of Science and Mathematics grant participants, the School of Education grant participants, Dr. Jackie Fish, Academic Vice President, Dr. George Metz, Dean of the School of Education, the Dean of Mathematics and Science, Dr. Jeryl Johnson and Dr. Patricia Hambrick, Director of Academic Technology and Academic Grants to discuss the plans for the grant and the potential school district partners.

Prior to writing this grant proposal, Dr. Hambrick met with Dr. George Metz, Dean of the School of Education at CSU, to discuss the possibilities and to seek his support for the grant. They met again to discuss the activities of the grant and the SOE's role in it. Dr. Hambrick continued meeting with all departments, deans and grant professors two times per month as the proposal was being written and activities were designed.

Once the DD4 school district indicated their willingness to partner for this grant, Dr. Hambrick coordinated an informational meeting with 27 interested teachers for the grant project. Other teachers are still applying for openings in the potential grant, hoping that a teacher spot will open. Dr. Hambrick will continue to meet with interested teachers as CSU prepares to begin professional development for Beginning Robotics by Integrating Mathematics and Science (BRIMS).

External sources consulted included Mr. Frank Hatten (The Boeing Company) and Mr. Jack Mitchell (AT&T) and Mr. Lee German, owner/director of Arbordale publishing, whose company specializes in science and mathematics related informational texts which are specifically designed to promote science content while contributing to students enjoyment of reading with science and mathematics purposefully integrated.

Charleston Southern University
& Dorchester District Four
Collaboration Plan, Dates, Participants

Institution	**Charleston Southern University**
Project Title	**Beginning Robotics in the Integration of Mathematics and Science**

Activity	Groups	Personnel	Position Titles	Dates
CSU BRIMS Meetings	Senior Administration Deans and Department Leaders, Dean of Education: Dr. George Metz Dean of Education, meeting 2	Hambrick Dr. Jairy Hunter, President Dr. Jackie Fish, VP Academic Affairs	Director of Academic Technology and Academic Grants Project Director	July 30th July 31th August 5th and 6th
CSU BRIMS Team Meetings	Grant Professors	Hambrick Dr. Metz	Education, Math & Science Professors	September 4th and & October 2014
DD4 Meetings	Senior Administration, Principals and Teachers	Dr. Gwendolyn Bright Dr. Morris Ravenell Dr. Gwendolyn Bright Teacher Grant Introduction	Director of Accountability and Staff Development DD4 Superintendent	Sept 15th, 2014 Sept 29th Sept 30th October 1st October 15th October 22nd

7. Management Plan

A BRIMS Advisory Council will meet quarterly and oversee all project objectives and activities. This team will be chaired by Dr. Patricia Hambrick, Project Director and Coordinator of the Mathematics Implementation Team. Members of the team include: Dr. George Metts, Dean of Education, Dr. Morris Ravenell, Superintendent of DD4, Dr. Gwendolyn Bright, Director of Accountability and Staff Development for DD4; a principal appointed by Dr. Ravennell, Dr. Melinda Walker, Coordinator of Science Implementation Team, Dr. Justin Grieves, Mathematics Professor, Dr. Linda Karges-Bone, Education professor and Dr. Mary Gene Ryan, Program Evaluator. A BRIMS Implementation Team will meet with Dr. Hambrick and Dr. Walker monthly to plan and review grant activities. One representative from each of the departments---science, education and mathematics—and one member from DD4 will comprise the team.

Dr. Ravenell and DD4 personnel will be responsible for assuring that the third through sixth grade teachers who join the grant, participate fully in the grant activities. The district will also be responsible for the providing facilities and equipment needed for the monthly workshops. They also will be responsible for ensuring that district FOSS kits and other materials are delivered to the schools in a manner that facilitates the module progression outlined in the grant.

The College of Science and Mathematics will be responsible primarily for designing and delivering the science content in the standards-based modules. Dr. Melinda Walker will oversee the efforts of the science faculty and work with Dr. Hambrick and others in the School of Education to coordinate all aspects of the grant. In addition, Dr. Walker will develop and teach some of the science content sections of three instructional modules. Dr. Todd Heldreth and Dr. Amy Nolan will assist Dr. Walker in developing and teaching the science content. All of the

science, mathematics and teacher education faculty will participate in visiting classrooms in an effort to see their content and pedagogy in action. Faculty in the mathematics department will coordinate with science faculty to integrate science and mathematics standards and practices. They also will be responsible for developing the mathematics section of the module and teaching in the workshops and summer institutes. Dr. Justin Grieves, Dr. Andy Blauch, and Dr. Karen Fonkert will develop and teach the mathematics sections of the modules. Dr. Grieves and Dr. Blauch are experts in robotics instruction and use it regularly in their classes.

The School of Education faculty will be involved with development and teaching of all modules. Their expertise as related to standards integration and best practices will be invaluable as mathematics and science faculty teach their respective sections of the modules. There are four faculty members of the School of Education who will participate in grant activities—Dr. Patricia Hambrick, Dr. Linda Karges-Bone, Dr. Brenda Marques, and Dr. Robin Franklin.

PROPOSED PROJECT TIMELINE

Improving Teacher Quality
Higher Education Grant Program

Project Year 2015-16

Institution	**Charleston Southern University**
Project Title	**Beginning Robotics in the Integration of Mathematics and Science**

Objective	Activities	Personnel	Start Date	End Date
1, 2 and 3	Orientation session for DD4 teachers and CSU professors	Hambrick	January 5 2015	January 15 2015
1	Initiation and Meeting #1 of BRIMS Advisory Council	Hambrick	January 10 2015	January 20 2015
1, 2 and 3	**Monthly Meeting with BRIMS Implementation Team** (This meeting will occur on or as close to the 10th of each month throughout the duration of the project; therefore, it is not listed for each month on this timeline).	Hambrick	January 10 2015	Ongoing **each month** through duration of grant
1, 2 and 3	Development and review of data collection instruments	Ryan	January 15 2015	March 15 2015
1	Planning and preparation for Spring Workshops (March/April/May) 2015	Hambrick Nolan Franklin Walker Blauch Karges-Bone	January 15 2015	February 20 2015

1 and 2	Ordering of teachers' materials including Summer Institute I	Hambrick Walker	January 15 2015	March 1 2015
1 and 2	Classroom Visitations	Hambrick: 3 education professors as listed in grant and selected science and math professors	January 20 2015	March 15 2015
Objectives	Activities	Personnel	Start Date	End Date
1	Ordering of professor materials for development of modules and materials needed for teaching in Summer I institute;	Hambrick Walker	February 1 2015	March 30 2015
1	Spring (2015) workshops for March, April and May conducted	Hambrick; Nolan; Franklin; Walker; Blauch; Karges-Bone	March 1 2015	May 30 2015
1	Planning and preparation for Summer I institute	Hambrick; 3 mathematics professors; 3 science professors; and 3 education professors as outlined in the grant	March 30 2015	May 30 2015
1, 2 and 3	BRIMS Advisory Council Meeting	Hambrick	April 10 2015	April 20 2015
1	Development of grade level (3, 4, 5 and 6) modules (# 1) for implementation in September, October and November 2015 (See Table 4)	Walker Karges-Bone Heldreth Franklin Grieves Blauch	May 1 2015	July 30 2015

1 and 2	Summer I Institute conducted including pre-test of teacher content and collection of other data for pre-post analysis	Hambrick and all nine professors as cited in the grant narrative; Ryan (evaluator)	June 1 2015	June 30 2015
Objective	Activities	Personnel	Start Date	End Date
1, 2 and 3	BRIMS Advisory Council Meeting	Hambrick	June 10 2015	June 20 2015
1	Planning for conducting Module 1 school-based workshops at each grade level including online activities	Walker Karges-Bone Heldreth Franklin Grieves Blauch	June 30 2015	August 20 2015
1 and 2	Ordering of teacher materials for fall 2015	Hambrick Walker	June 30 2015	July 30 2015
1, 2 and 3	One-day retreat for all professors, selected teachers, and evaluators to review activities and make plans for the future	Hambrick Walker Karges-Bone and all other professors/ and selected teachers	July 1 2015	July 30 2015
1	Grade level, school-based monthly workshops for Module 1 completed (Sept/Oct/Nov)	Walker Karges-Bone Heldreth Franklin Grieves Blauch	September 1 2015	November 30 2015

1	Development of grade level Modules (#2) for implementation in December 2015/January 2016 / Feb. 2016 (See Table 4)	Walker, Grieves, Karges-Bone and Heldreth	September 15 2015	November 1 2015
1, 2 and 3	BRIMS Advisory Council Meeting	Hambrick	September 1 2015	September 20 2015
1	Planning for conducting Module 2 school-based workshops at each grade level including online activities	Walker, Grieves, Karges-Bone Heldreth and Franklin	October 1 2015	November 30 2015
1	Grade level, school-based monthly workshops for Module 2 completed (Dec 2015/Jan 2016 and Feb 2016)	Walker, Blauch, Grieves, Karges-Bone, Heldreth, Franklin and Fonkert	December 1 2015	February 20 2016
1	Development of grade level modules #3 for implementation in March/April/May 2016	Nolan, Heldreth, Blauch, , Grieves, and Marques	December 1 20 2015	February 1 2016
1, 2 and 3	BRIMS Advisory Council	Hambrick	December 10 2015	December 20 2015
1	Planning for conducting Module # 3 school-based workshops at each grade level including online activities	Nolan, Heldreth, Blauch, Grieves, Fonkert, Karges-Bone and Marques	February 1 2016	March 1 2016
1	Development of grade level modules #4 for implementation in Summer Institute II		March 15 2016	April 30 2016
1	Grade level, school-based monthly workshops for Module 3 completed		March 1 2016	May 30 2016

	(Dec 2015/Jan 2016 and Feb 2016)			
1, 2 and 3	BRIMS Advisory Council	Hambrick	April 1 2016	April 15 2016
1, 2 and 3	Planning for Summer Institute II including implementation of modules 4.	Hambrick; all professors	April 1 2016	May 30 2016
1, 2 and 3	Collection and Analysis of Evaluation Data	Ryan	April 30 2016	August 1 2016
1, 2 and 3	Summer II Institute conducted Celebration of Learning	Hambrick; all professors and teachers	June 1 2016	June 30 2016
1, 2 and 3	BRIMS Advisory Council and Reception with all professors and teachers and invited guests from DD4 and CSU	Hambrick	June 1	June 15
1, 2 and 3	Final Report to CHE	Hambrick Ryan	June 1 2016	August 15 2016

8. Dissemination

At each school, the BRIMS project will be introduced at the beginning of the year. Since each elementary school will have teachers in grades 3-5 participating in the grant, dissemination will occur naturally and regularly as the project continues throughout the year. Principals will be involved through the Advisory Committee meetings and regular dialogue with project leaders. Of course, since workshops are school-based, all teachers and the principal will be invited to attend. In sixth grade, teachers will share, at faculty and department meetings the activities and experiences they are having in BRIMS. Sixth, seventh and eighth grade teachers who are not participating in the grant will be invited to attend the workshops and observe the project in action. Resources posted on the Course Management System will be available to all teachers at each school.

The BRIMS Project will be disseminated beyond the school through presentations and workshops delivered to the South Carolina Association of Teacher Educators (SCATE), SC Science Council, and SC Council of Teachers of Mathematics and national organizations representing professional development for teachers e.g. NCTM, NSTA, Learning Forward, etc.

Journal articles will be submitted to professional journals, e.g. *Teacher Education Journal of SC, Journal of Staff Development, etc.* Workshops and presentations will be submitted to appropriate Centers for Excellence conferences, e.g. Clemson University's Center of Excellence for Inquiry in Mathematics and Science. School visitations will be available, upon request.

Strategies for implementing inquiry-based lessons, including robotics, that integrate mathematics and science standards and practices will be posted to appropriate websites. Standards-based modules will be available on CSU's website and, through contractural

arrangements, may be used by other university and school districts working on similar projects. Workshops also will be made available using the same process. In all cases, the Acknowledgment of Support Statement on page 11 of the *Improving Teacher Quality Guidelines* will appear on all documents that are disseminated at workshops and in publications.

9. Budget Justification and BUDGET : Charleston Southern University Teacher Quality Grant

BRIMS: Beginning Robotics by Integrating Mathematics and Science

Budget Categories:

1. **Project Director: $6000.** While this is low, we were hoping to give the teachers and college faculty as much of the budget as possible. In addition to this Directo budget line, the Team Coordinators and college faculty also have the opportunities to visit schools and there are stipends for that line item as well.
2. **Nine faculty members: $9000.** These are personnel costs for the planning and teaching of faculty members who are on the grant team from the education department and the mathematics and science departments.
3. **Participant Support: $90,000, including travel for High Need LEA.** In keeping with the philosophy of providing the larger part of grant funds to teachers and college faculty members, this is the largest area of the budget. Stipends added for DD4 teachers as well as books, technology and materials for the teachers and faculty members to benefit professional development for all participants. It is the intent of the grant team to submit a proposal to present grant successes at a professional conference in Mathematics, Science and Technology.
4. **Supplies and Materials for Education, Mathematics, Science Faculty: $10,837.** This is to supply additional materials for college faculty for their own preparation and professional development for grant activities.
5. **Additional Costs: External Evaluator and travel/mileage costs for college faculty and the evaluator: $9500.00.** The cost for the External Evaluator has been increased due to the evaluator's extreme commitment to this project. The evaluator attends two planning meetings per month and attends every Grant meeting for the CCSD Innovation Zone 5th grade teachers. The evaluator also participates in the Midterm Grant Report and writes a narrative report for each grant professional development meeting for the teachers. The evaluator is also responsible for the development of teacher surveys including the attitudinal surveys for CCSD Innovation Zone teachers.
6. **Travel for Mathematics, Science and Education Faculty: $5000.00. As stated before,** it is the intent of the grant team to submit a proposal to present grant successes at a professional conference in Science and Technology. These travel costs are for the college faculty. The travel costs in category three are for DD4 grade teachers.
7. **Indirect Costs: $4444.44. According to the designated formula.**
8. **In-Kind Support from Charleston Southern University and DD4: $52,000 for Charleston Southern, $36,000 DD4, In-Kind Support for both partners, including the CSU Grant Director, CSU Coordinator salaries and for the DD4 Administrator Dr. Bright.**

Total: $150,000 plus $86,000= $238,000

BUDGET REQUEST
IMPROVING TEACHER QUALITY
Higher Education Grants Program

Project Year: 2015-16 **Award:** $ 150,000

INSTITUTION: Charleston Southern University	Partners	Budget	CSU Institutional Funds In-Kind	Other Funds School District DD4 - In-Kind	CHE use only
PROJECT DIRECTORS: Dr. Patty Hambrick					
1. Key Personnel (Faculty/Administration) LIST NAMES & Role					
A. Salaries					
1 Hambrick, Patty - Project Director - Math Team Coordinator / DD4 Dr. Gwendolyn Bright, DD4 District Admin	E= Education	$ 6,000.00	$ 22,000.00	$ 22,000.00	
2 Walker, Melinda	S= Science	$ 3,500.00	$ 16,000.00		
3 Three Education Faculty	E	$ 6,000.00			
4 Three Math Faculty	M= Mathematics	$ 6,000.00			
5 Three Science Faculty	S	$ 6,000.00			
Total Key Personnel Salaries		$ 27,500.00	$ 38,000.00	$ 22,000.00	-
B. Fringe Benefits TOTAL					
1 Hambrick, Patty - Project Director	E	$ 459.00			
2 Walker, Melinda	S	$ 267.75			
3 Three Education Faculty	E	$ 459.00			
4 Three Math Faculty	M	$ 459.00			
5 Three Science Faculty	S	$ 459.00			
Total Key Personnel Fringes		$ 2,103.75	$ -	$ -	-
TOTAL KEY PERSONNEL COSTS		$ 29,603.75	$ 38,000.00	$ 22,000.00	-
2. Support Personnel (LIST NAMES)					
A. Salaries					
1 Brian McGlothlin - Technology Support	E	$ 1,500.00			
Total Support Personnel Salaries		$ 1,500.00	$ -	$ -	$ -
B. Fringe Benefits TOTAL					
1 Brian McGlothlin - Technology Support	E	$ 114.75			
Total Support Personnel Fringe		$ 114.75	$ -	$ -	$ -
Total SUPPORT PERSONNEL COSTS		$ 1,614.75	$ -	$ -	$ -
TOTAL PERSONNEL COSTS		$ 31,218.50	$ 38,000.00	$ 22,000.00	$ -
3. Participant Support (District/School participants)					
a. Books	HN	$ 11,000.00			
b. Supplies and Materials	HN	$ 13,000.00			
c. Travel and Subsistence	HN	$ 4,000.00			
d. Room and Board	HN				
e. Teacher Stipends	HN	$ 50,000.00			
f. Tuition					
g. Technology/Equipment - iPads for new participating teachers and computers for in-kind	HN	$ 12,000.00	$ 10,000.00	$ 10,000.00	
h Other - PLEASE SPECIFY Facility Use	HN		$ 4,000.00	$ 4,000.00	
Total Participant Costs		$ 90,000.00	$ 14,000.00	$ 14,000.00	$ -
a. Classroom Observations/Teaching Demonstrations	E	$ 6,000.00			
b. Supplies for Education faculty	E	$ 4,837.06			
c. Supplies for Math & Science faculty	M,S	$ 6,000.00			
Total Supply Costs		$ 10,837.06	$ -	$ -	$ -
5. Equipment/Technology (greater than $5,000/item)					
a.					
b.					
Total Equipment Costs		$ -	$ -	$ -	$ -
6. Additional Costs - PLEASE SPECIFY (includes contract services)					

BUDGET REQUEST
IMPROVING TEACHER QUALITY
Higher Education Grants Program

Project Year: 2015-16 **Award:** $ 150,000

INSTITUTION: Charleston Southern University	Partners	Budget	CSU Institutional Funds In-Kind	Other Funds School District DD4 - In-Kind	CHE use only
PROJECT DIRECTORS: Dr. Patty Hambrick					
a. External Evaluator	E	$ 8,500.00			
Total Additional Costs		**$ 8,500.00**	**$ -**	**$ -**	**$ -**
7. Travel and Subsistence					
a. Education (State Employee)					
b. Education (Non-state employee)	E	$ 2,000.00			
c. Math & Science (State Employee)					
d. Math & Science (Non-State Employee)	M,S	$ 3,000.00			
Total Other Travel		**$ 5,000.00**	**$ -**	**$ -**	**$ -**
Total Direct Costs		$ 145,555.56	$ 52,000.00	$ 36,000.00	
Indirect Costs (8% * (direct costs - participant support - equipment)	E	$ 4,444.44			
TOTAL PROJECT COSTS		**$ 150,000.00**	**$ 52,000.00**	**$ 36,000.00**	

Partnership Percentage	
Education	25%
Dorchester District 4	50%
Math & Sciences	25%
Total	**100%**

BUDGET REQUEST - Project Director

Approved ✓
Not Approved
Signature Dr. Patty Hambrick
Patricia A Hambrick
Date 10-24-14

BUDGET REQUEST - Institutional

Approved ✓
Not Approved
Signature Dr. Jackie Fish
Jacqueline L. Fish
Date 10-24-14

STATEMENT OF ASSURANCES

Improving Teacher Quality
Higher Education Grant Program
Project Year 2015-16

NAME OF INSTITUTION OR ORGANIZATION

hereby provides assurance to the South Carolina Commission on Higher Education that if this institution receives a grant under the terms of *The No Child Left Behind Act of 2001 (PL107-110); Title II Part A Teacher and Principal Training and Recruiting Fund* that it will comply with the regulations, policies, guidelines, and requirements as they relate to the application, acceptance, and use of funds for this federally funded project. Also, the applicant institution assures and certifies that it:

1. Possesses legal authority to apply for the grant.

2. Will keep such records and provide such information as may be necessary for fiscal and program auditing and for program evaluation and will provide the South Carolina Commission on Higher Education or its designee any information it may need to carry out its responsibilities under the Improving Teacher Quality Program.

1. Complies with all provisions of the Program Improving Teacher Quality and its implementing regulations and all administrative rules of the S.C. Commission on Higher Education applicable to the Improving Teacher Quality Program.

2. Enters into formalized agreement(s) with the local education agency (LEA) or consortium of LEAs in the area of proposed service.

5. Takes into account the needs of teachers and students in areas of high concentrations of low-income students and/or low-performing schools and high-need districts.

6. Will comply with Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d) prohibiting employment discrimination where discriminatory practices will result in unequal treatment of persons who are or should be benefiting from the grant-aided activity.

Dr. Jairy C. Hunter

Name Chief Executive Officer

Jairy C Hunter, Jr.

Signature

10/24/14

Date

Appendix A: Pracites for Science, Mathematics and Engineering

Appendix B: Education Vitae

Appendix C: Partnership Agreements

APPENDIX A

Practices for Science and Engineering and Mathematics

The state of South Carolina outlines 8 science and engineering practices as indicated below:

In addition to academic standards, each grade level or high school course explicitly defines Science and Engineering Practice Standards with indicators that are differentiated across grade level and core areas. The term "practice is used instead of the word "skills" to emphasize that scientists and engineers use skills and knowledge simultaneously, not in isolation. (SC Science Standards, page 2).

1. Ask questions and define problems.
2. Develop and use models.
3. Plan and conduct investigations.
4. Analzye and interpret data.
5. Use mathematical and computational thinking
6. Construct explanations and design solutions
7. Engage in scientific argument from evidence
8. Obtain, evaluate and communicate information.

The standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important "processes and proficiencies" with long standing importance in math education.

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning. (SC [Common Core] Mathematics Standards, pages 6-8)

Appendix B

Dr. Patricia J .Hambrick
4333 Cloudmont Drive
Hollywood, SC 29449

Patricia J. Hambrick, Ed.D.
phambric@csuniv.edu

843.327.0288

EDUCATIONAL HISTORY:

B.A. Marshall University
Elementary Education/Math

M.A. Marshall University
Elementary Education

M.A. Marshall University
Special Education/Gifted

Ohio State University
Technology Credential Requirements

Ed.D. United States International University
Doctor of Technology & Learning

ACADEMIC EXPERIENCE & RECOGNITION

Director of Academic Technology and Academic Grants, Tenured Professor, Education
Charleston Southern University, 2002-Present

- Online Technology Classes, Grad/Undergrad.
- Philosophy of Education, Online Components
- Faculty Teaching and Technology Mentor
- Authorized Organizational Representative for CSU for grants.gov, NSF, Ed.gov., and other federal granting agencies.
- Outstanding Faculty Member of the Year
- Sabbatical Award, "Shadowing Children, Their Teachers and Their Computers." A project in Lemon Grove School District, CA.
- Tenured, Full Professor of Graduate Education, Point Loma Nazarene Univ.
- Director of Technology and Learning, San Diego, California.
- Assistant Professor of Education, Mount Vernon Nazarene College.
- Math & Computer Specialist/Gifted Education, Cabell County Schools
- Math Specialist/Learning Disabled, Cabell County Schools, 3-6 grades
- Middle School Mathematics Teacher, Cabell County Schools

COLLEGE TEACHING ASSIGNMENTS:

A. Mathematics for the Elementary Teacher
B. Effective Teaching and Learning Styles
C. Research Methods for Teaching, Learning and Technology
D. Microcomputers/Technology in Education, Grad/Undergrad
E. Instructional Organization and Effective Practices
F. Advanced Technology & Grant Writing, Advanced Educational Psychology
H. Philosophy of Education, Curriculum Development, Innovation and Evaluation

RESEARCH AREAS, SCHOLARLY ACTIVITIES, GRANTS AND PARTNERSHIPS

A. Dissertation: An Investigation of World Wide Web Use on Problem Solving Ability of Fifth Grade Students.
B. Problem Solving and Mathematics/Children's Literature and Mathematics
D. Computers and Problem Solving/Math and Computer Anxiety
F. Religious Anxiety,Christian Stewardship and Christian Philanthropy
H. World Wide Web and Problem Solving, Computer Software/Effective Teaching
J. Christian Colleges and "Drift", A Wesleyan Perspective on Distance Education
L. Grant Writing Activities:
- Grant Recipient for Ministry $ 130,000 Spring 2002
  (Inner City Ministry for Children in El Cajon, CA)
- Grant Recipient and Facilitator $700,000+ 2005-2014

M. Grant Director/Implementor: Title 3 Federal Grant, Charleston Southern
Grant Director/Implementor: EXCEL: $200,000+ CSU partnerships
(Robotics and Mathematics Coordinator)
Grant Director/Implementor: Teacher Quality Grant $ 89,000 2012-2013
Grant Director/Implementor: Teacher Quality Grant $107,000 2013-2014
EXCEL: **EX**cellence in **C**ollege **E**ntrance preparation and **L**eadership
Partnerships with Dorchester II School District and
Charleston County School District, Funding from:
- AT&T $ 5,000
- Dorchester 2 Pilot $ 14,700
- Title 2 with DD2 $100,000
- Bank of Amercia $ 22,000

Other University Grant Initiatives:

SC EPSCOR	Biology	$100,000+
BCBS	Nursing	$100,000+
Exchange Club	Nursing	$ 45,000+
SCANA	Nursing	$100,000

N. Partnerships: Sylvan/Dell, now Arbordale Publishing, Teacher Quality Grant
Boeing/EXCEL: Excellence in College Entrance preparation and Leadership
AT&T/Teacher Quality Grants and AT&T/EXCEL
Family Services, Money Rocks, Charleston, SC: EXCEL

CURRICULUM VITAE

NAME — Melinda Walker

BORN — September 19, 1958, Birmingham, Alabama

HOME ADDRESS — 202 Grouse Road
Summerville, South Carolina 29485
(803) 821 8792

EDUCATION

1989 — Ph.D. (Molecular & Cellular Biology & Pathobiology)
Medical University of South Carolina
Charleston, South Carolina

1981 — BS (Biology, Chemistry)
Charleston Southern University
Charleston, South Carolina

EMPLOYMENT

9/1995-present — Professor & Chair Biology Department
Charleston Southern University
Charleston, South Carolina
Courses taught: Anatomy, Physiology, Nutrition, Epidemiology, Botany, Zoology, Comparative Vertebrate Anatomy, Microbiology, Immunology, Cell Biology, Genetics

1/1994-5/1995 — Instructor Biology Department
Trident Technical College
Charleston, South Carolina
Courses taught: Anatomy & Physiology I, Anatomy & Physiology II
Developed departmental objectives for A&P I&II,
Advisor for MUSC Physician Assistant Program

8/1987-5/1995 — Professor
City Colleges of Chicago
Building 61 Naval Base
Charleston, South Carolina
Courses taught: Anatomy & Physiology, Microbiology, Genetics, Nutrition, General Biology, Environmental Biology, Physical Science, Inorganic Chemistry, Organic Chemistry, Astronomy, Oceanography
Developed General Biology distance learning overseas program
Developed lab programs for all sciences

2/1990-5/1992 — Adjunct Professor, Biology Department
Charleston Southern University
Charleston, South Carolina
Courses taught: Cell Physiology, Genetics, Zoology

8/1988-5/1989 — Adjunct Professor, Chemistry Department
The Citadel
The Military College of South Carolina
Charleston, South Carolina
Courses taught: Freshman Chemistry & Lab

1985-1987 — Substitute Teacher
Dorchester County District No. 2
Summerville, South Carolina

1982-1985	Laboratory Technician Litton Bionetics 2020 Bridgeview Drive Charleston, South Carolina Duties included: Research & Development, Quality Control, Elisa, Immunofluorescence, Tissue Culture
1979-1981	Microbiology Laboratory Assistant Charleston Southern University Charleston, South Carolina Duties included: Teaching laboratory sessions, Testing, Culture Maintenance, Equipment Operation

AWARDS & MEMBERSHIPS

2009	Human Participants Protection Education for Research Teams NIH Certificate II Stewards of Children Darkness to Light Training
2007	Oxford Round Table Nutrition Issues Certificate
2004	SC BRIN NSA Award
2003-2006	ACRIDF
1995-2005	National Geographic Society
1995-1998	Friends of the Forest Council
1989-1995	Summerville Band Boosters; 1992-1993 Board Member
1988	City Colleges of Chicago Programs for the Military Award
1986	American Lung Association Research Scholarship
1985	SC Critical Need Teaching Certificate – Chemistry & Physical Science
1981	Magna Cum Laude

GRANTS

1998	A.D.A.M. Educational Research Technology Award
2012-2014	Improving Teacher Quality Grant, Coordinator of the Science Team

THESIS

Walker, Melinda. Cellular and histopathologic responses in the tight skin mouse model of scleroderma. University Microfilms International, Bell & Howell Co. Ann Arbor, Michigan, 1990.

PUBLICATIONS

1. Walker, Melinda; Harley, Russell; LeRoy, E. Carwile. Ketotifen prevents skin fibrosis in the Tight Skin Mouse. J Rheumatology 17:57-59. 1990.

2. Walker, M., Harley, R.., DeLustro, F. and LeRoy, E.C. Adoptive transfer of TSK skin fibrosis to +/+ recipients by TSK bone marrow and spleen cells. Proc Soc Exp Biol Med 192:196-200, 1989.

3. Walker, Melinda; Harley, Russell A., LeRoy, E. Carwile. Inhibition of fibrosis in TSK mice blocking mast cell degranulation (86417) J Rheumatology 14:299-301, 1987.

4. Walker, M., Harley, R., Maize, J., DeLustro, F and LeRoy, E.C. Mast cells and their degranulation in the TSK mouse model of scleroderma (42183) Proc Soc Exp Biol Med 180:323-328, 1985.

Curriculum Vitae

Amy Lewis Nolan, Ph.D.
Department of Biology
Charleston Southern University

Academic Qualifications:

1994	B.S. (Biology), Charleston Southern University, Charleston, SC
1999	Ph.D. (Cell and Molecular Pharmacology), Medical University of South Carolina, Charleston, SC
1999-2000	Department of Defense Postdoctoral Fellowship (Breast Cancer Research)
2000-2004	Assistant Professor of Biology, Charleston Southern University
2004-2007	Associate Professor of Biology, Charleston Southern University
2007-Present	Professor of Biology, Charleston Southern University

Teaching Experience:

1997-1999	Beta-adrenergic agonist and antagonist (Pharmacology) MUSC
1999	Chemical Carcinogenesis (Drug Metabolism and Disposition) MUSC
1999	Adjunct instructor, Charleston Southern University (Intro. to Anatomy)
1999-2000	Cancer Chemotherapeutic Agents (Pharmacology) MUSC
2000-2004	Assistant Professor of Biology, Charleston Southern University
2004-2007	Associate Professor of Biology, Charleston Southern University
2008-Present	Professor of Biology, Charleston Southern University

Course Development:

2000	Life Science for Educators course and lab (co-developed with CSU Education Department)
2001	Pharmacology course to serve CSU Athletic Training majors and Biology majors
2002-2004	Introduction of computer based interactive Physiology labs into BIO 216
2005-2007	Flexible Space Teaching Project (Headed by Dr. Patty Hambrick)

Professional Memberships:

1996-Present	South Carolina Academy of Science
1999-2000	Associate member of The American Association for Cancer Research
2005-2007	Association for Women in Science
2008-Present	Appointed by Dr. Hunter as CSU's representative to SC Women in Higher Education

Academic Service:

2003	Self-Study Committee for Athletic Training Program Accreditation

2004-2006	Science and Math Representative for Strategic Planning Committee
2004-2007	Faculty Development Committee
2006	Policy Committee of Faculty Senate
2006	Search Committee for Dean of College of Social Sciences and Humanities
2007-2013	Center for Excellence in Teaching Committee
2007	Academic Policy Committee for Faculty Senate
2009	Search Committee for Biology Chairman
2011	Elected to Academic Integrity and Appeals
2013-present	Elected to the Tenure and Promotion Committee
2013-present	Participant in the IRIS grant
2014	Search Committee for Dean of Nursing

Community and Church Service:

1998-2004	Charleston Southern University Alumni Association Board
1999-Present	Charleston Southern University Alumni Association Board member
1999-Present	MUSC Graduate School Alumni Association
2002-2010	Charleston Southern University Board of Visitors
2003-Present	Charleston Southern University Buc Club
2004	Community Connections Program, sponsored by the U.S. Department State Bureau of Educational and Cultural Affairs, Volunteer
2005-2011	Trident Medical Center's Institutional Review Board, Member
2009-Present	Small group leader for Kidscoast (Seacoast's children's ministry)
2010-Present	Academic Advisor for Pharmacy Club
2011-Present	Trident Medical Center's Board of Trustees

Awards:

2004	17th Annual Excellence in Teaching Award
2007	Appointment as Institutional Representative for S.C. Women in Higher Education
2009-2011	One of the top three candidates for the Excellence in Teaching Award
2011-2012	Selected by Girls Volleyball Team as Honorary Coach
2012	Selected by Girls Basketball Team as Honorary Coach
2013	One of the top three candidates for the Excellence in Teaching Award

Presentations

2004-2006	Workshop Speaker for "Middle and Elementary School Academy of Science"
2005	Member of Faculty Panel Discussion during the Values and Ethic series
2007	Co-presenter at Educause Southeast Regional Conference in Atlanta
2011-present	Lab experiments for local high school and middle school students as a part of a STEM grant (headed by Dr. Patty Hambrick)

D. Todd Heldreth, D.V.M.
Charleston Southern University
9200 University Boulevard
Charleston, SC 29423

Phone (843) 863 - 7834
Fax (843) 863-7290
theldreth@csuniv.edu

Education

Virginia-Maryland Regional College of Veterinary Medicine (1984-1988)
Doctor of Veterinary Medicine

Emory and Henry College (1980-1984)
B.S. Biology

Employment

August 2006-present: Charleston Southern University. Associate Professor, Biology Department.

2003-2011: Trident Technical College. Adjunct Professor, Biology Department.

1994-2006: Owner/Veterinarian, Flowertown Animal Hospital, Summerville, SC. Small Animal Medicine and Surgery.

1990-1994: Sangaree Animal Hospital, Summerville, SC. Small Animal Medicine and Surgery.

1988-1990: Carroll Veterinary Clinic, Hillsville, VA. Mixed Animal Medicine and Surgery.

Grant-Related Professional Activities

- Presenter of zoology and biology content for 2012-2014
- Advisor for mock trial cases that deal with physiology in Dorchester 2 high schools
- Participated in career fairs in area middle and high schools (related to veterinary practice)
- Presented to middle and high school students on topics related to animal biology

Professional Organizations

American Veterinary Medical Association
South Carolina Association of Veterinarians

Curriculum Vitae

Dr. Andrew J. Blauch
Associate Professor and Director of Engineering Dual-Degree Program
College of Science and Mathematics
Charleston Southern University, Charleston, SC29423
Phone: (843) 863-7128 e-mail: ablauch@csuniv.edu

Education

PennsylvaniaStateUniversity, State College, PA
Doctor of Philosophy in Electrical Engineering, May 2000

CarnegieMellonUniversity, Pittsburgh, PA
Master of Science in Electrical and Computer Engineering, May 1992

MessiahCollege, Grantham, PA / TempleUniversity, Philadelphia, PA
Bachelor of Science in Electrical Engineering, May 1990

Teaching Experience

Associate Professor, Department of Mathematics
Charleston Southern University, Charleston, SC ..... 2007 – present

Freshman Seminar	*General Physics I & II*	*Circuits*
Intro to Mathematical Structures	*Introduction to Engineering*	*Physics of Robotics*
Pre-calculus	*Statics*	
Introductory Physics I & II	*Dynamics*	

Adjunct
ECPI, Charleston, SC ..... 2009 – present

College Algebra	*Semiconductor Devices*	*Microcontrollers*
Electric Circuits I	*Industrial Applications*	*Senior Project*
Electric Circuits II	*Instrumentation and Measurement*	*Special Topics in Engineering*
Circuits Analysis	*Programmable Controllers*	*Wireless Security*

Assistant Professor, Padnos College of Engineering and Computing
Grand Valley State University, Grand Rapids, MI ..... 2000 – 2007

Introduction to Structured Programming	*Dynamic System Modeling and Control*
Introduction to Digital Systems	*Manufacturing Control Systems*
Design of Microcontroller Applications	*Introduction to Engineering*
Automatic Control	*Product Design and Prototyping*
Circuit Analysis I	*Engineering Co-op 1, 2, and 3, site visits*

Instructor, College of Engineering
Pennsylvania State University, State College, PA ..... 1997 – 2000

Introduction to Embedded Microcontrollers	*Signals and Systems*
Linear Control Systems	

Teaching Assistant, College of Engineering
Pennsylvania State University, State College, PA ..... 1996 – 1997

Electronic Circuit Design	*Electrical Devices and Circuits*

Teaching Assistant, College of Engineering
Carnegie Mellon University, Pittsburgh, PA ..... 1990 – 1992

Fundamentals of Electrical Engineering	*Linear Circuits / Electronic Devices and Circuits*
Introduction to Electrical Engineering	*Signals and Systems*

Curricular Development

Charleston Southern University

- Developed the following courses:
  - Physics –*Introductory Physics I and II, General Physics I and II, Physics of Robotics*
  - Engineering –*Introduction to Engineering, Statics, Dynamics, Circuits*
- Purchased new lab equipment, created lab manual/activities
- Incorporated online assessments
- Coordinated transfer equivalencies for Applied Mathematics/Engineering Dual-Degree Program
  - and Libraries,Source Test Application, Practice Problem Generator

Service Activities

University, CSU

- Director of Applied Mathematics/Engineering Dual-Degree program
- Served on various departmental/college/university committees including
  - Mathematics Department (ongoing)
  - Curriculum Committee
  - Faculty Senate (vice chair 2011-2012)
  - Integration of Faith & Learning
  - Institutional Effectiveness
- First Look and new student orientation advisor, Honors student project supervisor

K-12 Activities

- Advisory Council – Summerville HS, Goose Greek HS
- Engineering talks to high school and middle school students
- Tours of campus facilities
- Tutor for students in mathematics and physics
- Workshops/presentations in public schools on engineering, science, and robotics
- Judge for various science events/fairs

Mentor/Supervisor

- Senior thesis mentor, Academic Magnet High School, Charleston, SC
- FIRST Robotics
  - FIRST Tech Challenge (FTC) mentor, AJ Robotics Team, Summerville, SC
  - FIRST LEGO League (FLL) coach, AJ Robotics Team, Summerville, SC
  - FIRST Robotics Competition (FRC) mentor, Hudsonville/Jenison, MI
- Teaching Intern Supervisor, Honors Student Project Supervisor, PSU

Industry and Research Experience

Consultant, Insight Environmental, Summerville, SC **2014**
Spead sheet development.

Consultant, Paulstra, Grand Rapids, MI **2004**
Adaptive Vibration Cancellation simulation and control design.

Consultant, Aerotech Inc., Pittsburgh, PA ..... **1997 – 1998, 2009**
Upgraded NGADS (Next Generation Automatic Drive System) software for PC based motion control card.

Design Engineer, Aerotech Inc., Pittsburgh, PA ..... **1992 – 1996**
Developed software and hardware for multi-axes motion control cards based on Intel960 RISC processor. Projects included NGADS (Next Generation Automatic Drive System), laser cutting applications, device driver design, CNC development, and user interface software.

Doctoral Thesis, PennsylvaniaStateUniversity ..... **1996 – 2000**
Modeling and Control Design in Nuclear Quadruple Resonance: Application to Mine Detection and Interrogation
Application of control concepts to NQR detection system with purpose of improving reliability of detection and providing a means of interrogating the mine's size and depth.

VITAE

Karen L. Fonkert
211 Two Pond Loop
Ladson, SC 29456
Telephone (Cell): (616) 502-1456
e-mail: KFonkert@csuniv.edu

EDUCATION

Ph.D.	2012	Western Michigan University, Kalamazoo, MI Mathematics Education (K-12), Mathematics Curriculum Research, Development, and Evaluation Endorsement
M.Ed.	2002	Grand Valley State University, Allendale, MI Mathematics Education
B. S.	1991	Western Michigan University, Kalamazoo, MI Mathematics & Psychology

PROFESSIONAL EXPERIENCES

2010- present	Assistant Professor, Mathematics Education Charleston Southern University, Charleston, SC
2007 – 2010	Visiting Professor Grand Valley State University, Allendale, MI
2003 – 2007	*Center for the Study of Mathematics Curriculum (CSMC)* Doctoral Fellow/Graduate Research Assistant, Western Michigan University, Kalamazoo, MI
2000 – 2003	Department Chairperson and Math Coach, Ottawa Township High School, Ottawa, IL
1994- 2003	Mathematics teacher in public schools (also served as department chair and math coach)

TEACHING ASSIGNMENTS RELATED TO ITQ GRANT

Fall 2013	Math 201 Mathematics for Early Childhood and Elementary Majors I
Fall 2013	Educ. 381 Strategies for Planning Curriculum and Assessment
Fall 2013	Educ. 426 Secondary Mathematics Curriculum and Methods
Fall 2013	Educ. 338 Early Childhood and Elementary Mathematics Curriculum and Methods
Summer II 2013	Math 606 Concepts of Mathematics for Masters of Education Students
Summer II 2013	Math 202 Mathematics for Early Childhood and Elementary Majors II
Summer I 2013	Math 201 Mathematics for Early Childhood and Elementary Majors I

SEVERAL PUBLICATIONS AND PRESENTATIONS RELATED TO GRANT (SAMPLE BELOW)

Fonkert, K. (2010). The nature of students' interactions in technology-rich classrooms. *Mathematics Teacher,* 2010 Focus Issu.

Fonkert, K. (2004). A summary of the *Goals for School Mathematics: A report of the Cambridge Conference on School Mathematics.* . (Available from the CSMC's *Historical Documents on K-12 Mathematics Curriculum,* http://mathcurriculumcenter.org)

Fonkert, K. (2004). *A qualitative study on facilitating classroom discourse and small group cooperative learning.* Unpublished manuscript.

Fonkert, K. (2002). *Designing and implementing an in-service designed to help teachers teach the Core Plus Mathematics Program effectively.* Unpublished masters thesis, Grand Valley State University, Allendale, Michigan.

GRANT WORK SINCE 2004

2012-present	***Center for the Study of Mathematics Curriculum (CSMC)***
	Awarded $13,000 to lead a research group to work on a grant to research the implementation of the Common Core Standards for School Mathematics
2007-2008	***Michigan Mathematics Rural Initiative***
	Co-facilitated summer workshops for teachers at three different sites in northern Michigan—each with participants from multiple school districts
2004 – 2007	***Center for the Study of Mathematics Curriculum (CSMC)***
	Participated in the planning, documenting, and debriefing of the video case professional development sessions for Kalamazoo Public Schools (KPS)
	Created entries for the literature and research instrument databases
	Interviewed KPS teachers for a study documenting their curriculum implementation and improvement, and assisted in the analysis of that data
1998 – 2007	***Core Plus Mathematics Project (CPMP)***
	Operated and monitored the Core Plus list serv
	Wrote material for the Teacher's Guide of Course 1
	Assisted in developing summer workshops
	Facilitated professional development sessions and workshops
1997 – 2000	***Renewing Mathematics through Teaching Curriculum (RMTC)***
	Developed and facilitated professional development sessions
	Organized and facilitated meetings for northern MI CPMP schools
	Participated in summer workshops

Justin A. Grieves

Curriculum Vitae 2014

Contact Information

Department of Mathematics
Charleston Southern University
Ashby Hall 206
9200 University Boulevard
Charleston, SC 29406
E-mail: jgrieves@csuniv.edu

Office Tel: (843)863.7830
Home Tel: (615)585.0560

Positions Held

Assistant Professor, Charleston Southern University — August 2013 - present

Reader, College Board Advanced Placement Placement Program — Summer 2013 - present

Assistant Professor, Murray State University — August 2011- May 2013

Graduate Teaching Associate, University of Tennessee, Knoxville — 2008-2011

Graduate Teaching Assistant, University of Tennessee, Knoxville — 2005-2008

Education

Ph.D., Mathematics, University of Tennessee, Knoxville, August 2011
- Dissertation: *Moderate Deviation of Intersection of Ranges of Random Walks in the Stable Case*
- Area of Study: Probability Theory

M.S., Statistics, University of Tennessee, Knoxville, August 2011

B.A., Mathematics, Western Kentucky University, May 2005

Teaching

Charleston Southern University
- GNED 101 - Freshmen Seminar — Sp 2014
- MAT 105 - Mathematical Structures — Fa 2013 (2), Sp 2014, Fa 2014 (2)
- MAT 130 - Pre-Calculus — Fa 2013, Fa 2014
- MAT 213 - Introduction to Probability and Statistics — Sp 2014
- MAT 209 - Business Calculus — Sp 2014
- MAT 221 - Calculus I — Sp 2014
- MAT 222 - Calculus II — Fa 2014
- MAT 321 - Calculus III — Fa 2013

Murray State University
- MAT 135 - Introduction to Statistics — Fa 2011, Sp 2012 (2), Fa 2012, Sp 2013 (2)
- MAT 540/640 - Mathematical Statistics (Probability Theory) — Fa 2011
- MAT 541/641 - Mathematical Statistics II (Statistics Theory) — Sp 2012
- MAT 554/654 - Statistical Methods — Fa 2012
- MAT 565/665 - Applied Statistics — Sp 2013

University of Tennessee, Knoxville
- Business Calculus — Sp, Su, Fa 2006; Sp, Su 2008; Sp 2009

• Calculus and Analytic Geometry II	Fa 2010
• Calculus and Analytic Geometry III	Sp 2011
• College Algebra	Fa 2005
• Introduction to Statistics	Su, Fa 2007; Su 2009; Su 2010
• Pre-Calculus	Sp 2007; Fa 2008; Fa 2009; Sp 2010

Awards:

- Hester College Faculty of the Year, 2013
- Project NExT Fellow, 2011
- Science Alliance Fellowship, University of Tennessee, 2006-2011
- Scholar of the Ogden College of Science and Engineering, 2005
- Ogden Trustees' Award, 2005

Community Service:

- STEM Fest Art Content Committee
- STEM Fest Planning Committee and Activity Participant
- Assisted in Math Club Activities at Murray Elementary
- EXCEL Presentations for Charleston County School District

Sample Presentations:

"Moderate Deviation of Intersection of Ranges of Random Walks in the Stable Case." Colloquium, Murray State University, February 1, 2011.

"Extending Random Walks to Lévy Processes." Presentation for a Probability Collo- quium, University of Tennessee, December 2010.

"The Upper Bound of Moderate Deviation of Intersection of Ranges of Random Walks in the Stable Case." Third Annual Graduate Student Conference in Probability, University of North Carolina, Chapel Hill, North Carolina, May 2009.

"A Numerical Approach to Solving Stochastic Differential Equations." Presentation for a Numerical Analysis Colloquium, University of Tennessee, November 17, 2008.

"Average Extrema of Geometric Random Walks." WKU Mathematics Symposium, Western Kentucky University, Bowling Green, Kentucky, November 2004.

"Balanced Wavelets v. Pre-filtering." International Constructive Functions Conference, 2004, Georgia Institute of Technology, Atlanta, Georgia, November 2004.

"A New Orthogonal C1 Scaling Vector Generating Piecewise Cubic Polynomials." SIAM Conference, East Tennessee State University, Johnson City, Tennessee, April 2004.

Robin K. Franklin rfranklin@csuniv.edu
108 Castle Harbor Drive Summerville, SC 29483
Work: (843) 863-7552 Cell: (804) 564-4571

Objective: Assistant Professor of Education

Education:

2009:	PhD: Educational Leadership	Virginia Commonwealth University
2003:	Endorsement: Gifted Education	University of Virginia
2002:	Endorsement: School Administration/Principal	University of Virginia
1993:	Masters of Education: Supervision	University of Richmond
1985:	Bachelor of Science: Elementary Education	Carson Newman College

Certification:

South Carolina Department of Education (Professional – Doctorate)
Endorsements: Elementary, Early Childhood, Elementary Principal, Secondary Principal, Elementary Supervisor, Secondary Supervisor, Middle Level Language Arts, Middle Level Science, Middle Level Social Studies, Gifted and Talented

Professional Experience:

2014-Present **Assistant Professor of Education** – Charleston Southern University, SC
Coordinator of Early Childhood and Elementary Education
NAEYC Spa Writer for NCATE Accreditation

2010-2014 **Assistant Professor of Education** – Charleston Southern University, SC
NAEYC Spa Writer for NCATE Accreditation

2006-2010 **Assistant Principal,** PreK-5 – *Governor's Award for Educational Excellence* - Henrico County Public Schools, VA

2004-2006 **Gifted Education Program Designer/Teacher**, Grade 4 and Grade 5
Henrico County Public Schools, VA

1999-2004 **General Resource Teacher,** PreK-5 - Henrico County Public Schools, VA

1995-1999 **Teacher**, Grade 5 - Collaborative Education
Henrico County Public Schools, VA

College Level Courses Taught:

Undergraduate Courses

- *Observation and Assessment of the Young Child*
- *Methods and Materials for Managing the Early Childhood Classroom*
- *Development of Language and Thought in the Young Child*
- *Teaching Social Studies in the Early Childhood/Elementary School*

- *Teaching Science in the Early Childhood/Elementary SchoolLanguage Arts for the Elementary School*
- *Teaching Reading in the Early Childhood/Elementary School*
- *Psychology Applied to Effective Teaching*

Graduate Courses

- *Curriculum and Instruction for Gifted and Talented Students*
- *Computers: Advanced Application for Elementary/Secondary School Administrators*

Publications

Franklin, R. & Siko, K. (2013). Using iPads to Teach Undergraduates Common Core State Standards (ELA): A Digital Marriage. *EdTechnology Ideas,* 1, Article 5. Available on the World Wide Web: http:/edtechnologyideas.com/education-technology-journal/

Franklin, R. (2013). Early Childhood Education at Charleston Southern University. *South Carolina Association of Early Childhood Teacher Educators' Newsletter (SCAECTE). 3(3),* 3.

Franklin, R. & Bower, P. *(2011).* Integrating Reading in Inquiry-based Science (IRIS) Grant. *South Carolina Commission on Higher Education Improving Teacher Quality Grant Program.*

Franklin, R. (2009). A Case Study: Increasing the Gifted Identification of Diverse Early Childhood Elementary School Students by Having a Talent Development Program. (Doctoral dissertation, Virginia Commonwealth University, 2009).

Public School Teacher Workshops

Berkeley County Westview Primary School, SC: *Appy Hour for Educators*
Berkeley County Westview Primary School, SC: *Using the iPad to Engage the Elementary Learner*
Berkeley County Westview Primary School, SC: *Mathematics, Literacy and Technology Family Night*
Charleston County Public Schools, SC: *Lesson Planning for Science*
Charleston County Public Schools, SC: *Poetry and Science – The Art and Science of Teaching*
Charleston County Public Schools, SC: *Smartboard Ideas for Science and Reading Instruction*
Charleston County Public Schools, SC: *Blending Science Instruction and CCSS using iPads*
Charleston County Public Schools, SC: *Sorting Circles for Hands-On Learning*
Charleston County Public Schools, SC: *Using CCSS Informational Texts to Teach Science*

Brenda G Marques
902 Longkeep Lane Apt. 308, Charleston, SC 29492
843-364-6945
bmarques@csuniv.edu

Objective

A position providing staff development, mentoring, and coaching for teachers.

Profile

- 40 years' experience as an educator.
- Goal-oriented individual with strong leadership capabilities.
- Organized, highly motivated, and detail-directed problem solver.
- Proven ability to work in unison with teachers, principals, and professors

Education

ABD, Nova Southeastern University

M.Ed., Reading, The Citadel
B.S., Elementary Education with Music education minor, Winthrop University

Employment

Director of Field Services and Assessment , *Charleston Southern University,* *2008-present*

- Provide field experience and clinical practice placements
- Responsible for data collection for School of Education programs

Adjunct Professor, *Charleston Southern University* *2007-2008*

- Taught EDUC 319, EDUC 325, EDUC 324, EDUC 632
- Supervised Clinical Practice students

- Adjunct Professor, The Citadel *2005-2007*
- Taught EDUC 591, EDUC 592
- Supervised student teachers
- Supervised Administrative Interns

Assistant Principal, Lead Teacher, Title I Consultant, Middle School Teacher, *Charleston County School District* *1974-2003*

- Responsible for grant writing, administering Title I funds, textbooks, discipline, LEA for Special Education
- Served as testing coordinator
- Observed teachers and provided appropriate feedback
- Provided staff development in best practices, reading instruction, differentiated instruction, and cooperative learning
- Taught graduate classes for the school district

Elementary Teacher, *Berkeley County School District* *1973-1974*

- Provided instruction for third grade and fifth grade students

Community Involvement

Organist, Cooper River Baptist Church, 40 years

Handbell Director, Cooper River Baptist Church

Honors & Awards

Distinguished Reading Teacher

Teacher of the Year

Linda Karges-Bone
Charleston Southern University and Education InSite
107 Dac's Lane, Summerville, SC 29483
Telephone: 843.870.4216; E–mail: dr.lbone@knology.net

Professional Preparation
College of Charleston, Special and Elementary Education, B.S., 1981.
University of Charleston, Special and Early Childhood Education, M.Ed., 1983.
University of South Carolina, Curriculum and Instruction with Cognate in English, Ed.D., 1994.

Appointments
- Advisory Board Member, The Gurian Institute for Brain-Based Teaching (2007-present)
- External Evaluator, Long Beach Unified School District TAH grant (2004-2007; 2006-2009; 2009-2014).
- External Evaluator, US Department of Education, Disability Resource Center for Independent Living (2002-2005).
- Consultant, Georgia Early Learning Initiative (2000-present).
- External Evaluator, National Science Foundation, NSF grant project on the math and science HUB initiative in coastal South Carolina (2000).
- Consultant, Berkeley-Dorchester Math and Science HUB, a National Science Foundation Initiative, (1994-present).
- Professor of Education, Charleston Southern University (1988-present)
- Consultant to STEMS and EXCEL grants, CSU (2011-present)

Products
Five Publications Closely Related to Proposed Project
1) Karges-Bone, Linda (2014). *Brain Tips: Simple, Yet Sensational Strategies Brain-Friendly Strategies for Improving Teaching, Learning, and Parenting.* Dayton, OH: Lorenz Educational Press.
2) Karges-Bone, Linda (2011). *Brain Framing: Instructional Planning with the Brain in Mind.* Dayton, OH: Lorenz Educational Press.
3) Karges-Bone, Linda (2009). *Breaking Brain Barriers.* Dayton, OH: Lorenz Educational Press.
4) Karges-Bone, Linda (2009). *Differentiated Pathways of the Brain.* Dayton, OH: Lorenz Educational Press.
5) Karges-Bone, Linda (1998). *More Than Pink and Blue: How Gender Can Shape Your Curriculum.* Dayton, OH: Lorenz Educational Press.

Four Other Significant Publications
1) Karges-Bone, Linda (2011). *The Educator's Guide to Grants for Special Education, Technology, Intervention Programs, The Arts, and Professional Development of Teachers (Second Edition).* Westminster, CA: Teacher Created Materials.
2) Karges-Bone, Linda (2001). *Productive Instruction and Authentic Assessment.* Carthage, IL: Teaching and Learning Company Publishing.
3) Karges-Bone, Linda (1999). *A Guide to Grant Writing and Fund Raising for Schools and Non-Profit Groups.* New York: Good Apple Publishing.

4) Karges-Bone, Linda (1996). *Beyond Hands-On: Techniques for Using Color; Scent; Taste; and Touch to Enhance Learning*. Carthage, IL: Teaching and Learning Company Publishing.

Synergistic Activities

1) Assisted with grant writing, proposal review, and/or development totaling over $20 million dollars in awards from state, federal, and private sources to K-12 and higher education institutions, including:
    a. "Latino Student's Success in College." Assisted Long Beach (CA) Unified School District with their proposal submitted to and funded by the Lumina Foundation. $100,000 award in 2011.
    b. "Girls and Chemistry." "Toyota Tapestry Grant." Assisted Strom Thurmond High School (Johnston, SC) with grant design submitted to and funded by the Toyota Tapestry program. $10,000 awarded in 2009.
    c. "South Carolina Network of Independent Living Centers." Assisted the Disability Resource Center (DRC) of Charleston, SC with their proposal submitted to and funded by the US Department of Education Grants program. The DRC provides services to five (5) un-served or undeserved counties with predominately minority populations. $658,000.00 awarded in October, 2001.
2) Serves on the Charleston Southern University Institutional Review Board (holds certification from the NIH to do so).
3) Served as a consultant to the Garrett Academy of Technology (2001-2002). Worked with faculty and administration at this inner city Charleston, SC high school for two years, developing long range plans and course syllabi as well as alternative assessments targeted to the school's unique student body and educational focus.

Recent Collaborators

Dr. Patricia Hambrick, Charleston Southern University Grant's Director and Professor

Graduate Advisor

Ed. D.: Professor Tom Buxton, Ed.D., University of South Carolina, Distinguished Faculty Emeritus, College of Education

Advisor

Dr. Karges-Bone serves as advisor to CSU School of Education students for their placement in teaching practica..

MARY GENE RYAN, ED.D.

318 Island Park Dr.
Charleston, SC 29492
Phone: (843) 670-9668
Email: mryan@csuniv.edu or journaloffice@burkinc.com

EDUCATION

DOCTOR OF EDUCATION in curriculum and instruction in higher education. University of South Carolina, Columbia, SC, 1994.

DISSERTATION: The effects of computer-assisted instruction on at-risk technical college students, 1994.

MASTER OF EDUCATION in community and occupational programs in education. University of South Carolina, Columbia, SC, 1987.

BACHELOR OF ARTS in Spanish and education. Emmanuel College, Boston, MA, 1975.

EXPERIENCE

OCTOBER 2011-PRESENT: RETENTION COORDINATOR, Midlands Technical College, Columbia, South Carolina

OCTOBER 2010 TO PRESENT: MANAGING EDITOR, HEALTH PHYSICS JOURNAL, Burk and Associates, McLean, Virginia.

OCTOBER 2006 TO PRESENT: EDUCATION CONSULTANT

SEPTEMBER 2006 TO PRESENT: ADJUNCT PROFESSOR, College of Adult and Professional Studies, Charleston Southern University, Charleston, South Carolina.

JANUARY 2007 TO SEPTEMBER 2011: PROJECT DIRECTOR – TITLE III GRANT, Midlands Technical College, Columbia, South Carolina.

OCTOBER 2001 TO SEPTEMBER 2006: PROJECT DIRECTOR AND ACTIVITY COORDINATOR FOR PROJECT IMPACT, Charleston Southern University, Charleston, South Carolina.

AUGUST 1996 TO SEPTEMBER 2006: DEAN OF STUDENT SUCCESS, Charleston Southern University, Charleston, South Carolina.

JANUARY 1995 TO FEBRUARY 1996: DEAN OF ARTS AND SCIENCES, Aiken Technical College, Aiken, South Carolina.

NOVEMBER 1990 TO DECEMBER 1994: DEAN, ACADEMIC SUPPORT DIVISION, Aiken Technical College, Aiken, South Carolina.

JANUARY 1990 TO OCTOBER 1990: DIRECTOR, LEARNING RESOURCES CENTER, Aiken Technical College, Aiken, South Carolina.

JANUARY 1984 TO DEVEMBER 1989: INSTRUCTOR, BUSINESS DIVISION; COORDINATOR, JTPA CLERICAL CLUSTER PROGRAM, Aiken Technical College, Aiken, South Carolina.

PUBLICATIONS

- Ryan, Mary Gene. (2013.) Improving retention and academic achievement for first-time students at a two-year college. Community College Journal of Research and Practice 37:131-134.
- Ryan, Mary Gene. (2012.) Improving academic success for at-risk two-year college students. Available at http://www.ed.gov/college-completion/promising-strategies. Accessed September 12, 2012.
- Ryan, Mary Gene. (Fall 2011.) Relationship between students' reading ability and their success in medical terminology at a two-year college. NADE Digest, Vol. 5, No. 3, 51-60.
- Ryan, Mary Gene (January 2007.) Introducing staff liaisons into first-year seminars. E-Source for College Transitions, Vol. 4, No. 3.
- Ryan, Mary Gene (1995.) Using e-mail as an evaluation tool. Innovation Abstracts, Vol. XVII, No. 20.
- Ryan, M.G. (1994.) The Effects of Computer-Assisted Instruction on At-Risk Technical College Students. (Doctoral dissertation). University of South Carolina, Columbia, SC.
- Ryan, Mary Gene (May/June 1987.) DECMate for the visually impaired, WordWrap, Vol. 5, No. 3.
- Ryan, Mary Gene (March 1987.) The computer: An educational tool. The Secretary.

GRANTS EXPERIENCE:

- U.S. Department of Education Title III-A Funds for the Improvement of Higher Education grant (Midlands Technical College); administration, 2007-2011
- U.S. Department of Education Title III-A Funds for the Improvement of Higher Education grant (Charleston Southern University); preparation and administration, 2001-2006
- Annual FEMA Earthquake Education Center grants (Charleston Southern University); preparation and administration, 1997-2001
- Annual Exchange Club of Charleston grants (Charleston Southern University); preparation and administration; 1998-2000
- Annual Carl Perkins Tech Prep/School-to-Work Grants (Aiken Technical College/Aiken County School District); preparation and administration; 1990-94
- Annual JTPA Grants providing job training for low-income adults (Aiken Technical College); preparation and administration; 1984-89

HONORS AND AWARDS:

- NISOD Award of Excellence in College Teaching, 2010
- Outstanding Team Leader of the Year, 2004, Charleston Southern University
- Outstanding Team Leader of the Year, 1999, Charleston Southern University
- Outstanding Staff Member of the Year, 1998, Charleston Southern University
- Educator of the Year (Administration), Aiken Technical College Chapter, South Carolina Technical Educators' Association, 1996
- Exemplary Program Award, South Carolina Higher Education Assessment Association, 1994
- Educator of the Year (Administration), Aiken Technical College Chapter, South Carolina Technical Educators' Association, 1991
- Educator of the Year (Teaching), Aiken Technical College Chapter, South Carolina Technical Educators' Association, 1985
- Faculty Member of the Year, Aiken Technical College, 1987
- Secretary of the Year, Aiken Chapter, Professional Secretaries International, 1989
- Outstanding Young Woman of America, 1987
- Lamp of Learning Award, Professional Secretaries International, 1985

Brian Edward McGlothlin

Communications Assistant
Charleston Southern University
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Charleston, South Carolina 29406

Office Tel: (843) 863-7077
Cell Tel: (843) 670-2511
bmcglothlin@csuniv.edu
bedlmcglothlin@yahoo.com

EDUCATION

Ph.D. in progress, Doctor of Philosophy in Business Administration (Completed 72/84 hours), Northcentral University, Prescott, Arizona. Major field: Managed Information Systems. Research interests: the use of technology in the classroom to improve educational opportunities. Dissertation in progress: *Critical Elements for Effective Faculty Training Programs for Business School Educators within South Carolina Independent Colleges and Universities (SCICU).* February, 2006 – present.

Master of Arts in Computer Resources and Information Management, Webster University, St. Louis, Missouri. Honors graduate. October, 2005.

Bachelor of Arts in English, Minor in Communications, The College of Charleston, Charleston, South Carolina. December, 1987.

EXPERIENCE

Communications Assistant – Charleston Southern University, Charleston, South Carolina
From April, 2000 – present

- Setup audio-visual support for classroom instruction. Develops and recommends plans and purchases for improving technology on the campus. Meets with vendors to obtain new services, correct problems, or learn of new procedures and regulations. Responsible for frugal expenditures for material and supplies to stay within a limited budget.
- Distance learning consultant; including design, implementation, and operation of all solutions and tools required to utilize emerging technologies in the learning environment. Provides maintenance and upkeep; including upgrades, updates, trouble-shooting, and documentation of all facets of production.
- Serves as information resource for faculty and staff regarding new purchases and acquisitions. Develop relationships with peer organizations and academic organizations in order to foster and increase awareness and trends of instructional technology in specific disciplines and across academia.
- Maintains harmonious relations with senior administration, other departments on campus, staff, and students to educate users of varying technical knowledge and ability. Skilled in planning, directing and coordinating events as new projects come on-line and funds are allocated for completion.

Construction Mechanic – H. R. Allen, Inc., North Charleston, South Carolina
From: January, 1995 – April, 2000

- Assisted in all aspects of commercial application of HVAC
- Read and interpreted mechanical drawings to establish a material list
- Ordered for delivery or personally obtained necessary supplies and materials from local vendors
- Responsible for punch list when the job reached its completion. Attention to detail was required to ensure Certificate of Occupancy was obtained.

Operations Manager – IVS Media, Inc., Charleston, South Carolina
From: March, 1988 – August, 1994

- Met with prospective clients to determine their needs based on stated requirements
- Provided detailed proposals and quotes for clients
- Handled deliveries, set up equipment, provided detailed instructions for equipment usage and operated equipment, if necessary, for the client
- Networked with local businesses including hotels, motels, convention centers, auditoriums, schools, and private residents to ensure harmonious relations with community resources
- Arranged for delivery in a three state territory to shuttle equipment to its appropriate destination
- Trained, assigned and coordinated schedules with three employees and two college interns.
- Serviced diverse groups to ensure every level of professionalism and attention to detail to culminate in a quality production.

PRESENTATIONS AND WORKSHOPS

Chairman for the South Carolina Partnership for Distance Education: Led three quarterly meetings – available in person or live feed from SCETV during my year of service
Planned each SCPDE meeting, scheduled each speaker, provided round-table discussions with the speakers and responded to questions from our audience

Presented at the South Carolina Law Enforcement Symposium (July 2007) Columbia SC, "Ask the Experts" session
Established best practices for immediate response systems with practical examples in business, state agencies, and colleges and universities

PROFESSIONAL DEVELOPMENT

- Representative for the South Carolina Independent Colleges and Universities (SCICU)
- 2010 - 2013 Board of Directors for the South Carolina Association for Educational Technology. "The purpose of the association is to promote innovative, intelligent and responsible use of technology in education."
- 2007 -2013 Certified Technology Specialist from InfoComm "To achieve a CTS credential, individuals must agree to a code of ethics pledging truth, accuracy and a commitment to excellence in all aspects of their profession."
- 2013 "Unsung Hero Award" ~ The Parent & Community Summit – 2013 Sponsoring Parent
- 2008 - 2009 Outstanding Staff Award ~ Charleston Southern University

Appendix C

Partnership Agreement
South Carolina Commission on Higher Education
Improving Teacher Quality Grant

This cooperative agreement reflects the overall commitment as well as the specific responsibilities and roles of each of the partners participating in the proposed Center of Excellence. A copy of this form must be completed for each member of the partnership (at a minimum, the institution of higher education and the school/district).

Charleston Southern University agrees to make the following contributions or agrees to play the following roles.

1. **Coordinate grant partners to assist in implementing a research-based agenda that will enable higher education faculty and 3rd through 6th grade teachers to improve classroom effectiveness, student achievement in science and mathematics.**
2. **Provide office space and a training room for project activities.**
3. **Work with other grant partners to develop course modules, implement workshops for teachers, and assess project outcomes.**
4. **Coordinate the research design, implementation and evaluation.**

The organization assures that this proposal addresses the following needs identified by the school/district:

1. **Teachers need more knowledge and skills to integrate mathematics, science and robotics.**
2. **Teachers need advanced study about effective learning strategies, science, mathematics and robotics content, and**
3. **Teachers need knowledge, skills and abilities of specialized materials for teaching to meet the grant goals and objectives.**

The organization further assures that this proposal was developed with input from the following higher education and 3rd – 6th faculty, administration and or staff.

Project Director/Key Contact Name: Dr. Patty Hambrick

Signature Patricia J. Hambrick Date: 10-21-14

Academic Dean: Dr. Jackie Fish

Signature Jacqueline T. Fish Date: 10-23-14

DD4 Superintendent of Schools: Dr. Morris Ravenell

Signature Dr. Morris Ravenell Date: 10-22-14
Gwendolyn Bright for Dr. Morris Ravenell

Partnership Agreement
South Carolina Commission on Higher Education
Improving Teacher Quality Grant

This cooperative agreement reflects the overall commitment as well as the specific responsibilities and roles of each of the partners participating in the proposed Center of Excellence. A copy of this form must be completed for each member of the partnership (at a minimum, the institution of higher education and the school/district).

Dorchester District Four agrees to make the following contributions or agrees to play the following roles.

1. **Provide teachers in 3rd, 4th, 5th and 6th grade to assist to participate in a research-based agenda that will enable higher education faculty and 3rd through 6th grade teachers to improve classroom effectiveness, student achievement in science and mathematics.**
2. **Provide office space and a training room for project activities.**
3. **Work with other grant partners to develop course modules, implement workshops for teachers, and assess project outcomes.**
4. **Coordinate the research design, implementation and evaluation.**

The organization assures that this proposal addresses the following needs identified by the school/district:

1. **Teachers need more knowledge and skills to integrate mathematics, science and robotics.**
2. **Teachers need advanced study about effective learning strategies, science, mathematics and robotics content, and**
3. **Teachers need knowledge, skills and abilities of specialized materials for teaching to meet the grant goals and objectives.**

The organization further assures that this proposal was developed with input from the following higher education and 3rd – 6th faculty, administration and or staff.

Project Director/Key Contact Name: Dr. Patty Hambrick

Signature Dr. Patty Hambrick Date: 10-21-14

Academic Dean: Dr. Jackie Fish

Signature Jacqueline T. Fish Date: 10-23-14

DD4 Superintendent of Schools: Dr. Morris Ravenell

Signature Dr. Morris Ravenell Date: 10-22-14
Gwendolyn Bright for Dr. Morris Ravenell

PARTNERSHIP AGREEMENT

South Carolina Commission on Higher Education
Improving Teacher Quality Higher Education Grants Program

This cooperative agreement reflects the overall commitment as well as the specific responsibilities and roles of each of the partners participating in the proposed *Improving Teacher Quality Higher Education Grants Program*. A copy of this form must be completed for each member of the partnership (at a minimum, the lead institution, school of education, division of arts and sciences, and a high need LEA). **Charleston County School District Innovation Zone** Agrees to make the following contributions or play the following roles in the project.

Dr. Patty Hambrick will be the Director for the Project. Dr. Hambrick will serve as the Director or the grant, Chair of the Mathematics Project Implementation Team and the coordinator of the online Course Management System (CMS) to support the Dorchester District Four teachers. She, along with other education department members will be responsible of the sections of the units related to the development and teaching of best practices pedagogy. Dr. Robin Franklin, Dr. Linda Karges Bone and Ms. Brenda Marques will assist in the development and teaching of the integration of integrating reading strategies with mathematics and science. The project will be housed in the School of Education, with major responsibilities in the School of Mathematics and Science. Dr. George Metz, Dean of the School of Education will assure that all resources needed for project success are available.

The organization assures that this proposal addresses the following professional development need(s) identified by the high-need LEA's needs assessment:

This project represents our stated needs in science and mathematics for professional development for the participating 3rd, 4th, 5th and 6th grade teachers in Dorchester District Four.

The organization further assures that this proposal was developed with input from the following higher education and high-need LEA faculty and/or staff:

Lead Contact Name: Dr. Patty Hambrick

Signature: Patricia J Hambrick 10-21-14

Signature of Dean of the School of Education: [signature]

Date 10/22/14

Signature: DD4 Superintendent of Schools, Dr. Morris Ravenell Dr. Morris Ravenell Date: 10-22-14

Gwendolyn Bright for Dr. Mayes Ravenell

PARTNERSHIP AGREEMENT

South Carolina Commission on Higher Education
Improving Teacher Quality Higher Education Grants Program

This cooperative agreement reflects the overall commitment as well as the specific responsibilities and roles of each of the partners participating in the proposed *Improving Teacher Quality Higher Education Grants Program.* A copy of this form must be completed for each member of the partnership (at a minimum, the lead institution, school of education, division of arts and sciences, and a high need LEA).

CSU College of Science and Mathematics: (Name of Organization) Agrees to make the following contributions or play the following roles in the project.

Dr. Melinda Walker, Associate Professor of Biology, will serve as the Science Implementation Coordinator and Co-Director of the BRIMS Project. She will be responsible for securing the science faculty to prepare and deliver the required content sections of the instructional units for the project. She also will coordinate all the science units with the School of Education and Charleston County School District. The Chair of Biology (Dr. Walker) and Dr. Jerry Johnson, Dean of the College of Science and Mathematics will assure that the resources of the science departments are available for project success.

The organization assures that this proposal addresses the following professional development need(s) identified by the high-need LEA's needs assessment:

The College of Science and Mathematics will provide the science and mathematics content required of elementary school teachers as identified by Dorchester District Four. All content will be correlated to the South Carolina Science and Mathematics Standards.

The organization further assures that this proposal was developed with input from the following higher education and high-need LEA faculty and/or staff:

Lead Contact Name: Dr. Melinda Walker

Signature Melinda Walker

Date 10-21-14

Signature of Department Chair (Biology) Melinda Walker 10-21-14

Signature of Dean of the Dean of the School of Education [signature] 10-21-14

Signature of DD4 Superintendent of Schools, Dr. Morris Ravenell Dr. Morris Ravenell 10-22-14

Gwendolyn Bright for Dr. Morris Ravenell

Partnership Agreement
South Carolina Commission on Higher Education
Improving Teacher Quality Grant

This cooperative agreement reflects the overall commitment as well as the specific responsibilities and roles of each of the partners participating in the proposed Center of Excellence. A copy of this form must be completed for each member of the partnership (at a minimum, the institution of higher education and the school/district).

Arbordale Publishing agrees to make the following contributions or agrees to play the following roles for the Teacher Quality Grant project:

1. **Provide teacher training about science content informational texts for children.**
2. **Align content informational texts with science and mathematics standards for students in grades 3-6.**
3. **Work with other grant partners to contribute content to course modules and assist with workshops for teachers.**
4. **Provide samples of selected science and mathematics related informational texts for grant teacher participants.**

The organization assures that this proposal addresses the following needs identified by the school/district:

1. **Teachers need more knowledge and skills to integrate mathematics, science and robotics.**
2. **Teachers need advanced study about effective learning strategies, science, mathematics and robotics content, and**
3. **Teachers need knowledge, skills and abilities of specialized materials including science and mathematics related informational texts and fictional texts for teaching to meet the grant goals and objectives.**

The organization further assures that this proposal was developed with input from the following higher education and 3rd – 6th faculty, adminisatration and or staff.

Project Director/Key Contact Name: Dr. Patty Hambrick

Signature Dr. Patty Hambrick Date: 10-24-14

Academic Dean: Dr. Jackie Fish

Signature Jacqueline D. Fish Date: 10-24-14

Arbordale President: Mr. Lee German

Signature Lee B. German Date: 10/24/2014